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ARTICLE I.

THE PRESENT STATUS OF ANTISEPTIC SURGERY. A Report made by Request of the Chicago Medical Society,* by ROSWELL PARK, A.M., M.D., Lecturer on Surgery, Rush Medical College, Surgeon to the Michael Reese Hospital, etc.

In making this report, I prefer to omit all theoretical discussions concerning the bearings of the germ theory, and the influence of germs in producing fermentation or decomposition, often carried to putrefaction. The acceptance of this so-called theory —which is in reality no longer a theory, but an incontestably proved fact—is so necessary for the proper practice of antiseptic measures, that he who cannot, so to speak, take the oath of allegiance to it, is committing a gross inconsistency in adopting in his work any of the proper antiseptic details. Moreover, this part of the subject will in due time be much more ably handled by another member of this society.

* Read at the regular meeting, October 16, 1882.

Accepting, then, this theory as the firm basis of fact to which we cling, it remains for us to study how we can best strengthen our position, and better prepare for a conflict in which knowledge is arrayed against overwhelming, and even infinite numbers.

To what extent do statistics help us? They serve to strengthen our convictions, but I imagine that few men began to use the Lister dressings impelled by a mere study of statistics. In fact, up to a very recent time, very few have appeared from the fountain head. Until Bryant, Savory and others provoked Mr. Lister into giving his results in figures and tables, we had to depend largely on those furnished from the German clinics. But very recently a work by Mr. Cheyne * has appeared, which contains such a mass of statistics on the subject that from its study even the most doubting Thomas amongst us must needs be convinced, and which should be regarded as having as much weight and importance as if Mr. Lister himself had written it, coming as it does from the pen of his trusted assistant and co-laborer. In this book the tables are so admirably arranged, and the details are so readable, that to it I would unhesitatingly refer him who desires to investigate the numerical features of the case. The work is both later and larger than that of MacCormack, and must therefore replace it. Besides these, we have the recent utterances of Volkmann,† Esmarch, Nussbaum,‡ Neudörfer § and others, which are of very great importance, and classic in their way.

Before considering applied details, it may be of advantage if we refer to the appearance and reactions of some of those minute organisms whose uninvited and unperceived presence often renders our best efforts futile. Can their presence be in any way detected, and can we distinguish between the innocent and the guilty?

It may be accepted as a general rule that their shape and size give reasonable indications as to their character. The nearer they approach the spherical or dumb-bell shape, the less injury

* *Antiseptic Surgery. Its Principles, Practice, History and Results.* By Watson Cheyne, M.B., F.R.C.S., etc. London: Smith, Elder & Co. 1882, pp. 600.

† Sammlung Klinischer Vorträge, No. 96.

‡ Leitfaden zur Antiseptischen Wundbehandlung.

§ Die chirurgische Behandlung der Wunden.

they do; while the more slender and rod-shaped they are, the more danger they betoken. The case reported at the last meeting of the society shows that spherical micro-organisms may exist in the blood of patients who give no external evidence of disease, while I think no case has ever been reported where the bacterium termo has been found in the blood of healthy individuals. Careful examination will reveal the former, too, in many wound secretions which have a sour smell, though the reparative process is not apparently delayed thereby, nor the farther decomposition or blood-poisoning take place. Their reaction to staining fluids and methods of cell division also denote wide differences between the different forms. I can testify unequivocally to the existence of living spherical organisms in the freshly drawn blood of the patient whose case of tetanus was reported to you two weeks ago, having been shown them since then by Prof. Curtis, while the boy certainly appeared in excellent health. Regarding these, then, as comparatively or quite innocuous, let us devote a moment to the rod-shaped bacteria. Are they ever present in the healthy living body, and must they inevitably lead to septic decomposition when present? Beside the above statements that they have not been so found, let me direct your attention to certain experiments made by Chauveau, and give briefly his "*experience du bistournage.*"

Bistournage is performed by subcutaneously rupturing the spermatic cord by torsion. The testicle thus freed lies separated from nearly all its sources of nutrition, but is protected by its tunics from access of air, which means from access of germs. Its adhesions to the tunica vaginalis are not sufficient to nourish it, and consequently it atrophies. If the blood contain putrefactive germs, then this testicle ought to break down. This it does not do; no germs reaching it either from the blood or the air; it simply disappears by absorption. But if the germs come from without the organism, the fact can be proved as Chauveau proved it. He injected septic organisms into the vascular system of rams. After the fever, when not fatal, had subsided, he performed the *bistournage*, and putrefaction of the testicle ensued. But this was not enough. Lest some might object that the bacteria in the injected fluid were not the active agents, he carefully

filterd the liquid to remove them, and then repeated the experiment, but never got the same result. To make assurance surer, and to prove that it was not the infective fever which caused the putrefaction of the organ, he varied the experiment in this way: He injected two rams with the same fluid and same dose, and then made the *bistournage* on one, with the result that putrefaction followed only in this one case. Furthermore, when he practiced the *bistournage* on the left testicle before, and on the right after injection, it was the right only which putrefied.*

Here was a most ingenious proof that the admission of such germs into an organ determines its destruction. Should any one ask how, then, it happens that, when these germs can effect destruction of parts, they do not destroy life, the answer is at hand; first, we know that life frequently is lost in this way and from this cause; and second, we know how vigorously we have to combat these organisms when we succeed in saving our patient.

It will be profitable next to consider how it happens that after injection of irritating substances, such as *e. g.*, ammonia, we find septic micro-organisms in the pus thus formed. Without stopping in this place to go over the experimental ground, therefor, we are forced to believe that such germs have more or less access to the blood, via the lungs and alimentary canal, on account of their minuteness, but that the blood and tissues in a healthy state offer so poor a field for their development that they die from lack of favorable surroundings.

(No reference is made here to the special infectious diseases, each of which is supposed to have its own bacillus, though the fact that the infection does not always follow exposure can be thus best explained.) But in condition of lowered vitality, depraved nutrition, or in the presence of other diseases, the blood and tissues may become so insensibly altered that it assists, instead of preventing their growth. In actual practice we see sepsis and erysipelas occur much more frequently in the exhausted, the debilitated and the aged than in the young and healthy. No other conclusion than this satisfactorily accounts for known facts.

* Quoted from Jeannel's "De l'Infection Purulente." (Cheyne.)

Another point: The sphero-bacteria seem to be more or less inimical to the more poisonous rod-shaped bacteria; the former very rapidly exhaust the nutritive fluid in cultivating solutions and starve out the latter. It may be a most fortunate thing, then, when the former are present in the blood and wound secretions, for they may serve thus to make things unpleasant for the latter, and either prevent their appearance or hasten their disappearance.

In surgical injuries, micro-organisms may enter the lists through two different paths; through the blood, or by the wound. We take precautions against the first possibility in three ways. (1). We endeavor, as far as possible, to operate upon patients only when they are in good health. (2). When they are reduced or aged, we try to put them through a "building up process," by which we may restore to blood and tissues that unknown element vitality, that imparts this resistant power. (3). And when emergency compels us to operate upon those in unfavorable condition we try to impart this property in the speediest possible manner by administration of those remedies which are both stimulant and antizymotic, such as alcohol, quinia and the like.

As against infection of the wound surface, we have the chain of precautions known as "Listerism," a system which, when scrupulously carried out, makes the entrance or lodgment of any living germ very improbable, perhaps impossible. This system has won its way over incredulity and ridicule, and has left an impress which shall prove an historical monument, no matter what change it may undergo.

Following Mr. Lister and his disciple, Mr. Cheyne, we ought to distinguish between aseptic and antiseptic surgery. The former includes a series of measures calculated to absolutely exclude every living germ from lodgment on the wound surface or in the dressings. To this end there is probably but one known method, and that is the strictest form of Listerism. It is, of course, impossible to say to exactly what extent any of his details could be omitted, or whether any others could be substituted for them; but those who aspire to make the course of a wound perfectly aseptic had best adhere strictly to those direc-

tions laid down by their author. It would take a long course of experimenting, which might be trifling with human life, before we could deviate from his plan. Besides, no one could go over the question more carefully than he has done. These details are laid down in so many perfectly accessible places that it would be superfluous for me to recount them here. Let us remember that their strict and conscientious observance constitutes our only positively aseptic surgery, and, turning our attention to the other part of the subject, consider how we can best render our operative procedures and our subsequent dressings, properly speaking, antiseptic.

Here a much wider field is opened up to us. Moreover, it makes comparatively small difference whether we positively exclude germs or cripple and destroy them when present; whereas, the latter course is the easier, and the good we can accomplish by devising simple and easily applied dressings which may be brought into extensive common use, and which shall be genuinely antiseptic, will greatly overbalance any harm that may happen in exceptional cases by omitting to resort to the complicated and expensive Lister method. In other words, we shall by the one practice save many more lives than we shall lose by not adopting the other.

When such a statement can be made as was heard at a recent congress of German surgeons, that little or nothing was now left of the original Lister system among those who were its most firm adherents, it behooves us to find out whether this is really the case, as well as to inquire why these features have been one after another dropped or changed. I propose, therefore, to speak of each of them separately, and then of their various substitutes.

And first of the spray. The cry of "Fort mit dem spray" was raised some little time ago, and we are now told that Mr. Lister himself considers it the least essential part of his system. Several causes have conspired toward its abandonment. In the first place, numerous cases of carbolic acid poisoning were reported as owing to its use. Then grave doubts arose as to its being so effective as at first supposed. Besides this, it was not only unpleasant for the operator, but often a positive disadvantage to him. As a result of all this, the atomizer is seldom

seen in the German clinics. It is chiefly used during operations where serous membranes are exposed. In the service of Billroth, Albert, Gussenbauer, Czerny, Luecke, Nussbaum and many others, it is very seldom used during any but those just mentioned, and by no means always during those. A very frequent practice with those surgeons is to keep very large atomizers playing in the operating room for an hour or so beforehand, especially when laparatomy is to be made; but when the patient appears the machine is removed. Some of the objections to the spray may be overcome by substituting some other antiseptic for the phenol. Thymol has proved as worthy as its former reputation; salicylic acid is better; acetate of alumina has not yet had sufficient trial; oil of eucalyptus bids fair to be a success. In Paris, Pean is using peroxide of hydrogen, but the substance is very unstable, and he nas no better results than many who use no spray. Altogether, the present tendency is to make the use of the spray the exception, rather than the rule.

The protective was an essential feature two years ago. Now it is much less often used. It was supposed to fulfill two indications; to protect the raw or tender surface beneath it from the rather irritating carbolized gauze, and by the presence of lead oxide in its coating to indicate when decomposition had taken place. We now find that it is not necessary to apply gauze directly to the skin, for a layer of borated cotton is better than both. Then the drainage tubes used are often made of black rubber, which contains more or less free sulphur, and this, meeting with the lead oxide, gives a false indication of decomposition. The nose of a healthy individual is a sufficiently accurate detector of putrefactive changes. The protective serves this useful purpose, however, it keeps the cotton fibers from adhering to the edges of the wound, to hairs, or ends of sutures, and thus makes change of dressings much less unpleasant to the patient; for this purpose it should be often used.

No noteworthy change has been made in the use of drainage tubes. But they should be made of red rubber instead of black, for the reason above stated; their ends should be cut off even with the surface, that they may not be occluded by pressure, and

should be held in place with a single suture through the edge of the wound.

The gauze perhaps holds its own. It is used just the same as ever. But it is in no way superior to well made boro-salicylic cotton, while the latter is much the softer. Then, too, we have finely picked and prepared oakum, tow and jute, all of which are admirable, and cheaper than fine cotton. They may, therefore, be laid over the first layer of cotton.

Cheaper substitutes for Macintosh are now made in abundance; we have very thin rubber cloth, gutta-percha paper, waxed paper, and that prepared with paraffine; and all, save the latter, pliable and supple.

Last of all, for the outside bandages, the Germans are now using a very fine, thin sort of muslin goods, which are soaked in carbolized water just before using, and can then be snugly and easily applied. An elastic rubber bandage may occasionally be used to advantage.

All these materials we may regard as, in a measure, duplicates of the materials employed by Lister. Now, as we gradually depart from his original methods, numerous other ways and means of attaining nearly or fully his results are before us. Some of these are well worth our attention. A very important question for us to ask ourselves is this: If the spray is of doubtful utility, do we need any substitute? Probably we can accomplish in most, if not in all cases, all that is necessary by practising irrigation with carbolized water, This may be done occasionally during the operation, and should always be done just before applying the dressings. If the hands, instruments and sponges be perfectly clean and then carbolized, as well as the water in which the latter are cleansed, we need feel little fear for the result. And if the water used for irrigation be quite hot, and allowed to play in a fine stream upon the part during the operation, we shall have an efficient antiseptic and styptic both.

Of the various antiseptics the following deserve consideration to-night: thymol, potassium permanganate, aluminum acetate, zinc chloride, resorcin, salicylic acid, alcohol, glycerine, eucalyptol, boracic acid, napthalin and iodoform.

Thymol was first brought to notice for this purpose by Volkmann and Ranke, of Halle.* At first it promised well, but it has not stood the tests and is now seldom used. Once in a while it is used in the spray during laparotomy, but the solution ought to be as strong as 1 to 250 instead of 1 to 2,000, as at one time recommended.

Potassium permanganate, in solution, serves very well for irrigation and washing out purulent cavities; but it is seldom or never employed in the spray. Its solution is excellent, too, for cleansing sponges, or for keeping them.

Aluminum acetate was introduced by Maas, who uses 2½ per cent. solution in spray, and soaks his compresses and dressings in the same. He claims that his cases follow a strictly antiseptic course, while the salt certainly is free from irritating qualities. It is deserving of further trial.

Solution of *zinc chloride* was long ago recommended by Lister for cleansing and purifying of wounds and sinuses that had become more or less foul. Recently, Kocher† has published his experience with the use of weak solutions in the clinic at Bern. He often uses them as weak as one-fifth of one per cent., and saturates his dressings with them, thus making it another substitute for carbolic acid. If one may judge from his published statistics, his results are most satisfactory.

Resorcin is a new candidate for favor. The writer has had no personal experience with it, and has hardly seen enough reports of its use to be able to speak intelligently thereof. Like many other new drugs, if all that is said of it be true, it must be of value; but manufacturers' and dealers' statements are not always reliable.

Salicylic acid has the advantage over carbolic acid that neither in strong solution nor in powder has it odor or caustic effect; its disadvantage is its slight solubility in water. It was brought into surgical use by Thiersch,‡ of Leipzig, and has been used a great deal. In the spray it is non-irritating to raw surfaces and serous membranes, and is not infrequently employed. In

* Volkmann's, Samml., Klin. Vort., No. 128.

† Volkmann's, Samml., Klin. Vort., No. 203–4, 1881.

‡ Volkmann's, Samml., Klin. Vort., No. 84–5.

Langenbeck's clinic a reservoir of it was always at hand for this purpose. Volkmann has showed that in those cases which I have already referred to where the discharges have a sour odor, and sphæro-organisms are found under the microscope, the use of this acid checks all mischief and odor. Lister makes a cream or ointment of this acid to apply around the edge of other dressings where irritation has been set up. It may be used to advantage in solution for irrigation where carbolic acid is irritating or obnoxious, and dusted dry on ulcerated surfaces, where it dries into the crust and forms a perfect protection from the air.

Alcohol is a most efficient antiseptic; the name of the individual who introduced it having been lost in the dawn of history. As a stimulant injection, more or less dilute, its use is familiar to all. It is desirable here to lay stress on the fact which Hack* has demonstrated, that granulations treated by alcohol absorb very little, if at all, while those treated by carbolic acid absorb easily. The practical importance of this fact is very great.

Glycerine has, in the writer's opinion, been too much neglected. Introduced for this purpose by Demarquay, in 1855, it was first tried in hospital gangrene, and then in all wounds. He esteemed it and praised it most highly.† I have used it considerably in preserving anatomical specimens and in embalming, and I have usually found that the more severe the test the more satisfactory the result. I had for some time been using carbolized glycerine as a substitute for carbolized oil, it being much more cleanly, and miscible with the water used in washing or irrigating, when I met with articles on the subject by Griffin‡ and others. They advocated its use in major operations, such as severe amputations, etc., claiming that they thus got union by first intention just as when they used the Lister dressing. It has this great advantage that it does not evaporate, and that when mixed with a due proportion of carbolic acid, or alcohol,

* Ueber das Resorptionsvermögen granulirinder Flächen." Leipzig, 1879.

† Gazette des Hopitaux. Octobre, 1855.

‡ Lancet, June 18, 1881, p 985.

or iodoform, dressings saturated with it must be either impermeable to the air, or must act as antiseptic filters.

I now thus use it a good deal as a dressing for lesser amputations, lacerated or contused wounds, plastic operations, and the like. I saturate soft canton flannel, or surgeon's lint, or absorbent cotton, with it, apply two to six layers, and then put some gutta-percha paper over it, or not, as the case may seem to require, and over all this the usual bandages. With this dressing I have had no bad result, but as complete union by first intention as I ever saw. I can't help venturing the statement, therefore, that the more anatomists and surgeons use glycerin the better they will like it.

Preparations from the eucalyptus, especially the oil, are gradually working themselves into favor. Schulz, of Bonn, urges their adoption.* Baucholtz and Siegen have proved their antiseptic properties. They also hinder the emigration of white blood corpuscles, and can thereby influence suppuration.

Schulz directs that for the spray the glass reservoir of the atomizer should be filled with an alcoholic solution of the oil which the steam could take up and emulsify. Its odor and expense serve to tell against it. A ten per cent. solution of the oil may be used, as I have just recommended, with glycerine. It may also be used in the preparation of gauze. Lister's own experiments with it have proved, according to Cheyne,† very encouraging. It may prove a substitute for carbolic acid under all circumstances. Its non-poisonous and anti-malarial properties should be greatly in its favor.

Boracic acid is too sparingly soluble to be of much service save where it may be applied in dry powder, but in such cases it hardly has a superior. Its crystals are difficult to pulverize, but this difficulty may be overcome by trituration with a few drops of alcohol. It may then be dusted from a pepper-box or blown through a blower. Cavities that are to heal by granulation may be filled with it. Thus used after excisions, sequestrotomies, removal of projectiles, etc., it offers the safest means of preventing sepsis. For such purposes its only rival is iodoform, and it has

* Centralblatt für Chirurgie, Jan. 24, 1880.

† Loc. cit. p. 141.

this great advantage, that it is odorless, and that boracic acid poisoning is almost unheard of.* Lint and cotton may be steeped in hot saturated solution, after cooling and drying the fine crystals are deposited in the meshes of the fibre. Still better is the result if salicylic acid be added. Absorbent cotton thus prepared is equal to the best Lister gauze. Boracic acid is not yet used nearly as much as it ought to be. It has very similar advantages to iodoform without its odor. It certainly stimulates healthy granulations. For my own part, I like it better and better as I use it more and more.

Napthalin, I imagine, has not yet been tried this side of the ocean. Discovered by Garden in 1820, recently introduced by Luecke, of Strasburg, and described by Fisher,† it is a very cheap and efficient "antibacteriticum." It is a "coal-tar product," and has the chemical formula, C.10, H.8. Like boracic acid, it is with difficulty reduced to fine powder, but may be used in just the same way and with the same results. Its advantages over everything yet mentioned in this paper is its cheapness. It is a white crystalline body, melting at 79° C., insoluble in water, but easily soluble in four parts of ether. Gauze may be impregnated with a mixture of this solution, with three parts of alcohol. This gauze will cost one-fifteenth as much as iodoform gauze. Napthalin is easily miscible with unguents and may thus serve in many parasitic and other skin diseases. (Kleinhaus, Simon.) I saw Luecke using gauze which had been treated with the drug reduced to as fine powder as possible, and simply rubbed into its meshes, just as plaster of Paris bandages are made. With this he was dressing all his cases. Fischer relates cases where the use of napthalin locally has suddenly checked erysipelatous processes. It can be used in any and all ways. I shall soon begin using it myself, and hope to see it generally tried.

Lastly, we have *iodoform*. So much has been of late written‡ about this substance that I need not devote much time to it;

*In the St. Petersburg Vratsch, No. 31, 1881, two cases are reported.

† Berlin. Klin, Wochenschr., Nov. 28, 1881; and Centralblatt für Chirurgie, Beilage, No. 29, 1882.

‡ Langenbeck's Archiv. XXVII, p. 196 Wiener Med. Woch., Nos. 13 and 23, 1881. Weiner Klinik, Jan. 1882. Volkmann's Samml., Klin. Vort. No. 211. Vide also Annals of Anat. and Surg., March and July, 1882.

German current literature contains very frequent allusions to it. When we realize that the iodoform dressing is used most extensively all over Germany we must feel that its merits are very great. As an antiseptic it is regarded equal to carbolic acid, and it is perhaps less liable to cause constitutional disturbance. Still, symptoms of poisoning are now and then observed. Iodoform is absorbed in small quantity, and must accordingly be eliminated in some way. This elimination takes place through the kidneys. Moosetig-Moorhof, who introduced it, claims that this free elimination is prevented by the carbolic acid used during operations, since it irritates these emunctories; he, therefore, uses only clear water for irrigation, instruments and sponges. Without being prepared to pass judgment on his views. I can only say that they do not seem to be shared by those surgeons who, besides himself, most use it.

The introduction of iodoform has certainly advanced the possibilities of surgery. The great danger formerly after such operations, as extirpation of the larynx, thyroid or rectum, excision of the tongue, and the like, was from purulent infection, because by the very nature of the cases a strictly antiseptic dressing was impossible. Now, by the use of this same drug they are made practicable and even safe. I have seen Billroth stuff a tent of iodoform gauze into the peritoneal cavity after extirpation of the uterus per vaginam, and, leaving it there, tampon the vagina with the same,—the patient recovering without a drawback. After operations about the mouth, the wound is stuffed with this gauze, which is changed only after two or three days. After laparotomy, iodoform is sprinkled into the abdominal cavity without hesitation. In a similar manner it is employed after plastic and osteoplastic operations. The various opportunities for its use in syphilitic and skin diseases can only be hinted at here.

In spite of these advantages, it has some bitter enemies, but it is steadily gaining ground. In the writer's humble opinion it is *the* antiseptic, for surgical purposes, of the immediate future. It will find its largest field, perhaps, in cases of tuberculous joints, sinuses and ulcers. Indeed, its friends claim for it positively and specifically anti-tuberculous effects. This matter should be regarded as still *sub judice*.

The only serious charge which can be brought against it is that under its use erysipelas happens more frequently than when the Lister gauze is used. Reports indicate that this is rarely the case; and yet it happens so very seldom that iodoform can still hold its own against competitors.

Iodoform gauze may be prepared in two ways. The powdered drug may be sprinkled over the proper material and rubbed in. Or, better, 60 grammes of resin are dissolved in 1200 gr. of alcohol, and 50 gr. of glycerine added; into this fluid 6 meters of gauze are placed, and then wrung out; when half dried it is dusted with 50 gr. of powdered iodoform.

Concerning the quantity of drug that it may be considered safe to use, those who most use it have set the limit of absolute safety at 10 grammes, yet much more may be tolerated, though seldom required. Indeed, Gussenbauer* poured 240 grammes (nearly eight ounces) into the cavity left after resection of the ankle, and no poisoning resulted.

Its penetrating, tell-tale odor can be partially disguised by balsam of Peru, eucalyptus oil, and various other liquids and solids.

Space fails to more than mention peat or black earth, corrosive sublimate*, terebene, sanitas, the various balsamic preparations, chloral, oil of mustard, and other aromatics, chinolin, iodine and many other drugs and chemicals that have at different times been recommended. They probably all have certain good points, but it is, to say the least, doubtful whether any of them can be compared to those which I have spoken of at some length.

Neither is this the appropriate place to discuss the relative merits of silk, cat gut, chromic gut, silkworm gut, nor ox-aorta ligatures, nor of those of deer or kangaroo tendons, or the like. No particularly new method of rendering any of them antiseptic has been lately presented, and it is with precautions against sepsis alone that this paper deals. The same remark applied to bone and other drainage tubes.

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* Personal communication.

† These two recommended respectively by Neuber and Kümmel, Centralblatt für Chirurgie, Beilage No. 29, 1882.

I am fully aware that I have really only introduced the subject of this report; but the inestimable importance attaching to everything calculated to deprive surgery of the horrors of blood poisoning must be my excuse for having detained you so long.

1558 Wabash Avenue.

ARTICLE II.

THE YELLOW OXIDE OF MERCURY. By W. W. SEELY, M. A., M. D., Professor of Ophthalmology and Otology in the Medical College of Ohio.

For quite a number of years all oculists and a large proportion of the general profession have been aware of my advocacy of the abandonment of the ordinary astringent-caustic treatment of all conjunctival troubles. I am quite correctly represented (so far as it goes) by the author of an article in a recent number of your journal* on "The Yellow Oxide of Mercury in Ophthalmic Practice," as substituting for astringents and caustics the yellow oxide and vaseline. And I have repeatedly stated that my satisfaction in treating conjunctival affections dates from this period. Except in a journal devoted to general medicines it would be quite superfluous to state that the introduction of the impalpable powder, the yellow oxide of mercury belongs to Pagenstecher; the ointment made with it, however, was usually very strong, 20 to 60 grains to the ounce (of lard) and its use almost restricted to the late stages of corneal affections. Its use in this country had (till my advocacy) been very limited. My devise of vaseline as a vehicle for it along with the recommendation of weaker preparations (8 to 10 grains to the ounce) as well as its use in the first stages of corneal affections, and all forms of conjunctival inflammations, have quite put a new life into it. All I claim (and I am supported in the claim by the priority of my articles) is the use of vaseline as a vehicle, weaker preparations, its use in corneal troubles from their inception, not waiting for a subsidence of the inflammation; its adaptation to conjunctival affections.

* Hotz, May, 1882, vol. xliv, No. 5.

Some two years or more, after I had made known this "adaptation," Mr. Baden, Guy's hospital, London, discovered the virtues of the yellow oxide and vaseline in conjunctival troubles, thinking it was new and original, though a glance at the current literature would have shown that it had already been advocated and reported upon by myself.

(See reply of the editor of *Centralblatt für Prakt, Augenheilk'd* to Dr. (now Prof.) Fuchs, in regard to vaseline as a vehicle, etc.)

Each year's experience had added support to my views first enunciated on the non-astringent caustic treatment of conjunctival affections.

The author (Hotz) of the article above alluded to, seems to think my "cure-all" claim extreme, but even if it were a proper statement of my position there is nothing very peculiar in it. A reference to Dr. Wilson's (Bridgeport, Conn.) report will show the position taken in routine practice by the adherents to the old astringent-caustic plan. This one uses nitrate of silver, that one sulphate of copper, another tannin, etc., or changes are rung on two or three astringents. I reply that I never use astringents under any circumstances, my "routine" being yellow oxide of mercury and vaseline. Wherein does my practice differ from that of others? Undoubtedly only in this, that my conjunctival remedy found its first field in, and is regarded as belonging to, corneal affections. I simply substitute the yellow salve for astringents, claiming that astringents may be, and should be, abandoned *in toto*.

I am quite aware of the revolutionary character of my position, but it is receiving support continually, and will be established. There is no man bold enough to claim that the astringent-caustic plan is a success. Any plan equally successful, but freed from the disadvantages of the old one is a gain. So far no one has claimed that the yellow oxide is not equal in efficiency to astringents and caustics. That it is free from these drawbacks needs no argument, when I state that, properly prepared, the salve causes no pain or inconvenience. But my non-astringent caustic plan embraces more than the use of the yellow oxide. I do not regard the yellow oxide in the light of "a powerful local

stimulant and alterative, promoting the absorption of the products of inflammation and encouraging the process of repair." (Hotz.) Certainly not in the language quoted.

Now, whoever advocated this remedy under the above language may be, and I am not quite pursuaded he is not, claiming something for it that it does not possess, at least not beyond many other substances. I have no doubt the author of the language quoted does not differ from many others, when he uses it as a "stimulant and alterative." Further, I have no doubt that herein lies his unwillingness to "follow the example of a recent writer."

I am not at all pursuaded the yellow oxide surpasses other substances as an irritant and absorbant. It may possess their attributes, mysterious as may be the use of them, but when I put it on a violently inflammed conjunctiva I certainly do not have in view the production of irritation and absorption. Omitting any special theories of inflammation, an apparently important desideratum is the contraction of blood vessels. I do not think I am wrong when I state that the yellow oxide does bring about contraction of the blood vessels in the pathological state in question. I have seen the sclera become so pale and such dryness produced that I have discontinued its use for the time.

We all know that the astringents contract blood-vessels, but along with the knowledge of that fact goes the knowledge of the other, that the primary contraction is likely to be minimum, the reaction (or dilatation) maximum. Who has learned the secret of reversing the above reaction? We have all been brought up in the same latitudinarian school, teaching "salutary reaction," "increased circulation," "carrying off of the morbid products, etc., etc.

The absolute necessity for nitrate of silver in purulent states of the conjunctiva has been almost as fixed as existence itself, and I thoroughly recognize the shock produced by a flat denial supported incontrovertably by clinical experience, and now the latter backed up by mycology.

In my therapeutic investigations the purulent state was the last in which I abandoned the astringent-caustic treatment, while it should have been the first.

Sometime after my hardihood in asserting that purulency did not demand astringents and caustics, Professor Becker, of Heidelberg, went a step further and claimed that only cleanliness was needed. It can then, I believe, be considered demonstrated that purulency does not require astringents and caustics. If I am not mistaken we have been in the habit of regarding the purulent state as really but a grade higher in the inflammatory list than a catarrhal. Taking then but the logic of all the books, and only that logic, and where does it lead us? It is so clear "the wayfaring man though a fool need not err therein." Trachomatous conjunctivitis consists in the formation of new growths in and at the expense of the pre-existing conjunctival elements, a process accompanied by more or less catarrhal conjunctivitis, and it is now rendered quite probable that even the trachomatous bodies are due to a parasite (the trachoma coccus of Prof. Huburt Sattler, of Erlangen). It follows if the chief of conjunctival inflammations (laying aside now any causes) does not require astringents, caustics, why should the minor forms? My clinical studies antedated the birth of medical mycology proper. In brief, I accidentally discovered in treating the corneal complications of trachoma, that the lid trouble likewise subsided in a remarkable manner under the yellow oxide, from which I was finally led to abandon the usual remedies. By inference I passed to other forms with of course more striking results, since this element of self-limitation is more marked. I may then state my position as follows: Absolute clinical conviction, subsequently my theory resting on deductions from mycology, and lastly the scientific basis as laid by investigations from various sources and recognized, I fancy, by all. I venture to claim that no part of either general or ocular therapeutics rests on a more solid foundation.

The old salves and collyria of the bi-chloride of mercury were ahead of their age, for it is only modern science that has taught us why they are efficient, by showing that it only requires one part of the bi-chloride to 20,000 of water to kill the vegetable growths of ordinary decomposition. My rationale of the action of the yellow oxide has been that in the presence of the sodium chloride furnished by the tears, a certain amount of bi-choride is

formed. Whether this is correct or not the experiments I am now making will determine, as they will also I think, the influence of the yellow oxide on the parasites of the various conjunctival secretions. I have assumed that in the remedy advocated I had a powerful parasiticide, as I know I had a contractor of blood vessels, which two actions I have claimed as proper for a remedy in conjuntival inflammations.

As I have so frequently stated in other places, I believe Professor Leber gave the only rational explanation of the action of astringents when he said it is parasiticidal. Now all investigations go to show that these materials stand quite at the bottom of the list in checking the growths of ordinary decomposition. (See table in Real Encyclopœdie.)

To carry out my ideas in full necessitates one more revolution. For nearly two decades atropine has been the adjuvant of the astringent-caustic treatment, especially in the more important forms of conjunctival inflammation, such as the trachomatous and the purulent. All investigations prove that the effect of atropia is dilatation of blood vessels from paralysis of the muscle wall. Now if inflammation is really little more than exaggerated nutrition, the blood-vessels are enlarged, even new ones are formed, and the problem is to contract and obliterate them, which cannot be done by a paralysis of thin walls. The same thing holds true in non-vascular structures, since the hypernutrition is here represented by both an increased lymph supply, and the blood (in some cases) of new formed vessels. It is claimed by very high authority that the lymph vessels are directly connected with the blood-vessels, at any rate their circulation stands in close relation to that of the blood.

In the case of the cornea, every one knows the first phenomenon of an inflammation of this structure is an accumulation of leucocytes; further on a consequent crowding together, strangulation, even necrosis of the tissue. The problem here too is precisely the same, to check the supply. This of course is not the only problem, but the first. Now corneal complications represent the sole "mode of death" in conjunctival inflammations. I may be pardoned then for my conclusion, other things being

equal, for resorting to the same general principle in the management of inflammation of these two structures.

For a series of years I have resorted more and more exclusively to the use of the myotics which contract blood-vessels, such as eserin, in corneal affections, instead of mydriatics, such as atropine, and with constantly increasing satisfaction.

Now, if I carry out the principles I am compelled, if I use one or the other, to resort to a myotic (such as eserin) in conjunctival affections. From the present stand-point then of our knowledge I feel justified in insisting upon the principles I have laid down, besides my clinical experience so far has added, for me, the demonstration of this truth. As will have been seen, my chief object has been to enunciate certain foundation principles, using given remedies as my text. I am far in reality from believing that anything like perfection has been reached, but I do believe that the steps taken, while out of the beaten path, will help form a new one far plainer and better.

ARTICLE III.

SUMMARY OF MONTHLY REPORTS OF THE MEDICAL DEPARTMENT OF THE SOUTHERN ILLINOIS PENITENTIARY, CHESTER, ILL. For the year commencing August 1, 1881, and ending July 31, 1882. By H. Z. GILL, A.M., M.D., Physician to Southern Penitentiary.

Having no "idle house" connected with the institution, when men are not able for light duty, from sickness or debility, they are reported in hospital or in *sick cell;* and many are in hospital who would otherwise be in a convalescent ward or idle house, if there were such a place. Hence the report of days lost in hospital and in sick cell is much larger at times than it otherwise would be.

At the time of changing the location and building occupied as hospital (about May 20), the culinary department of the hospital was discontinued and the provisions supplied from the general

officers'. kitchen. About the beginning of the year, the number attending morning sick-call somewhat increased, as the number of convicts increased; and, also, there was more care in recording all who came to the call, whether they received any important treatment or not. About that time there were other but temporary causes for the increase. During the early months of the year there was a considerable amount of diarrhœa, dependent upon a combination of causes; partly from the diet, and partly from the water, the river at the time being very high. After commencing the use of cistern-water, and using less fresh meat and more vegetables, the difficulty diminished; but the disturbances of the bowels, with the necessarily routine diet, will always be a trouble to be met, especially in the class of men here found.

The cases of intermittent fever (single attacks numbering some hundreds, many of them not taken into hospital) were generally easily controlled with alkaline aperients, and the antiperiodic cinchonidia sulphate. The remittent, malarial and continued forms of fever were of moderate severity. The cases of typhoid fever, eight in number, were mostly well defined, and the majority quite severe. The three commencing in April were especially marked in the nervous element of the cases. They were quite delirious, two of them sleepless and noisy for several nights, but these two recovered, one of them after suffering a perforation of the membrana tympani. From this latter trouble, however, he ultimately entirely recovered, with restoration of normal hearing. The third patient of this group was extremely nervous and trembling. Prostration was early quite marked, and a lung complication carried him off on the fourteenth day in hospital. Our management of typhoid cases (none but well-defined cases have been so designated) has been to keep a careful register of the temperature, pulse and respiration; and to diminish the high temperature by frequent bathing or sponging; moderate the diarrhœa, if any existed, by turpentine emulsion and tinct. opii, and by external applications over the bowels, of lard and turpentine with moist heat in cases of much tenderness; keep up the action of the kidneys with a mild

alkaline diuretic; and give a supporting diet, of milk principally, frequently administered. Stimulants were not given at all in the earlier stages of the disease, and seldom in the latter. In cases of pulmonary complications the treatment was adapted to the general indications—turpentine applications, covered with flannel wrung out of hot water. One case had, near the close of the disease, suppuration of the left parotid gland. Patient was a young man of delicate constitution, light complexion and red hair. This is the third case of the kind I have had in my own practice, all of whom, however, recovered, notwithstanding it is regarded as a rare complication. See Trousseau, also Da Costa.

The case of tuberculosis, complicated with hydrothorax, was a colored boy twenty years of age. He had had a severe and prolonged attack of pheumonia about one year before, but had recovered sufficiently to do work most of the summer. He entered hospital December 23. By January 1, respiration became exceeding difficult. With the aspirator I drew off twenty-three ounces of fluid from the right pleural cavity, which afforded him great relief, though of temporary duration. On the 4th of February the pressure from accumulation of fluid became so great as to demand relief, and I drew off fifty-five ounces. The operation was repeated, at intervals of from five to eight days, until March 1. The fluid drawn was bloody serum of 1018 to 1022 sp. gravity. Under the microscope the blood-corpuscles appeared crenated, and evidently many of them disintegrating. The entire quantity drawn was two hundred and forty ounces. The pulse ranged from 90 to 120, except occasionally and during the last few days, when it ran higher.

The post-mortem revealed the right pleural cavity filled with reddish serum; the lung was contracted to the size of a fist, and containing many tubercular masses; some adhesions were stretching across the chest wall. The left cavity also contained considerable serum, as did also the abdominal cavity; and the lung was filled with tubercles. It is easy to see how, by means of these adhesions, exploratory tapping with the hypodermic syringe might have failed to reach the fluid in the thoracic cavity. Tuberculosis, rapid in its course, was the incurable principle of his

illness; and hydrothorax the incidental, for which thoracentesis gave great but only temporary relief.

The other case of acute tuberculosis (Frank Kennedy) was very rapid in its course. One marked feature of the early history of the case was a wide deviation from the normal pulse-respiration ratio. On being transferred to the hospital from the sick-cell, I found his pulse varying from 100 to 110; and yet the respiration was from 40 to 50, and even at some times as high as 60. Expectoration was very slight. Treatment seemed to be of no benefit.

Post-mortem revealed both lungs literally crowded with tubercles, from the size of a pin head to half the size of a pea. This condition of the lung explains the clinical symptom of rapid respiration, and suffering from a "want of breath," which was at times very distressing.

Charles Moseley, colored, died July 21, 1882, at 11:50 A. M. Autopsy three and a half hours after death. Body well nourished. Rigor mortis scarcely perceptible: large scar on right wrist; large perpendicular scar on the chest, four inches long, above the left nipple. Blister eight inches in diameter over the region of the stomach.

An incision was carried from the upper border of the sternum to the symphysis pubis. The blood which escaped from the incised vessels was extremely watery. Ecchymosis existed on the under side of the rectus muscles of the abdomen, about two and a half inches in diameter, and situated two inches above the umbilicus. The lungs, collapsed, were free, and contained very little blood, except the base of the left, which was very dark, and contained considerable very dark blood; but a piece of it floated in water. It seems to be the result of hypostasis. The left side of the heart was contracted, but was entirely empty; the right side was flabby (did not open it). The liver was large (did not weigh it), and filled with very dark, thick blood. On section it was of a lighter yellow than normal, in parts quite decided well marked in this respect—fatty degeneration. The pancreas was very large, but did not seem to be otherwise abnormal, except rather dense. Weight, 6½ ounces. The kidneys

were large, and the right had ecchymosed spots on and in the cortical portion. It was of a yellowish white color, and bore the appearance of acute fatty degeneration. The left bore the same marks, but in less degree. The bladder was partially filled with urine, which, on examination, proved to contain albumen ($\frac{12}{20}$). The stomach was much contracted, and contained a dark greenish fluid; the mucous membrane was much tumefied, but no ulceration was perceptible.

I have given the *post-mortem* before the clinical history because on the former we finally based the diagnosis.

Clinical history: On the night of the 6th and 7th of July (about midnight) he was visited; he had been vomiting freely, as he said and as the condition of his cell indicated. A prominent and persistent symptom was nausea and frequent vomiting—at intervals of a half hour to four or five hours. Nothing seemed capable of allaying it for any length of time. The ejected matter was of a dark-green color, mixed with whatever he may have taken to eat—milk once or twice. He spat blood at times. It would seem to accumulate in the back part of the mouth, and he would spit it out without any effort at vomiting. About the time he came into hospital, for a day or two, it would come pretty freely with slight effort at vomiting; but, in smaller quantities, it would be as likely to come after vomiting. Another symptom of unusual character, in relation to other conditions, was the absence of fever during the entire course of the attack, except a very few hours before death.

Also, we may mention the slow, regular pulse, not exceeding 70 during the entire time except during the last few hours. I was fully persuaded that it was a case of poisoning of some kind, but the only poisons occurring to me as accessible to him were corrosive sublimate, concentrated lye and fish-berries (*anamirta cocculus*). The symptoms, however, did not correspond to any of them, and the delay in manifestation obscured the case. Phosphorus did not occur to me until the *post mortem*. The convicts are not allowed matches; but he being in the female department, to help iron and make fires, had access to matches

constantly. It will be seen that nearly all the *post-mortem* appearances were those of phosphorus poisoning. The duration of the case is rather unusual, though others are on record of even greater duration, and yet fatal. His previous health had been perfect, and he was in every way stout. He was always of a reticent character; and during his illness it was with the greatest reluctance that he would say anything about his case. He was serving a second term.

Summary of Monthly Reports of the Medical Department of the Southern Illinois Penitentiary, Chester, Illinois, for the year commencing August 1, 1881, and ending July 31, 1882. Services of H. Z. GILL, M. D., Physician to Southern Illinois Penitentiary.

The number of convicts increased, during the year from August, 1881, to July, 1882, inclusive, from an average of 356.5 to 513, giving an average for the year of 436. The health was generally good. The rate of mortality per annum for 1,000 men, was 27.5; and deducting the case of poisoning (suicide), 25.23. New York gave, 1881, 31.7.

The loss of time last summer was much greater than during this summer, it being then much hotter. Lost time, July, 1881, 710.75; number convicts, 354; per cent., 7.72. Lost time, July, 1882, 346.75; number convicts, 513; per cent., 2.6.

The cases, Nos. 8, 9, 10, 11, are the only ones that can be properly classed as among diseases measurably under the influence of treatment. No. 1 was thoroughly poisoned, and his health broken down by long confinement in jail before coming to this institution. See below farther description of the individual cases.

[SEE NEXT PAGE FOR TABLES.]

SUMMARY OF MONTHLY REPORTS.

MONTHS	AUGUST.	SEPT'R.	OCT'R.	NOV'R.
Average number convicts	356.5	354	347.7	357.7
Mean monthly temperature (this is approx. correct)	83	76.7	62 5	43
Average number attending daily sick call	38	30.6	17.8	14.6
Average number in hospital	10.8	10	7.1	6.3
Average number in sick cell	4.4	3	2.6	2
Working days lost from sickness—				
1. In hospital	293	261	184.5	165
2. In sick cell	128.5	76.6	70.3	54
Total lost time	421.5	337.6	254.8	219
Deaths	1	1		
Sent to insane asylum	1			
Antiperiodics used	$25.60	$18.00	$12.40	$12.40
Number men fed by medical department—				
1. In hospital		307.5	317	253
2. In cell house		107.5	112	122
Total		415	429	375
Gallons of milk issued to sick		55	90	85
DISEASES—1. MEDICAL.				
Intermittent fever	17	4	3	1
Remittent fever		2	5	3
Continued fever				2
Malarial fever	1			
Typho-malarial fever			1	1
Typhoid fever				
Diphtheria				
Pneumonia				
Dirarhœa, acute	2	2		2
" chronic	1		1	
Bright's disease, acute				
" chronic	1			
Rheumatism	4	3		2
Epilepsy				
Consumption				1
Jaundice				
2. SURGICAL.				
Hæmorrhoids		3	2	3
Fistula in ano		1	1	
Sprains	1			
Fractures				
Injuries and contusions	1	3		1
Floating cartilage in knee-joint				
SURGICAL OPERATIONS.				
Removal of right eye		1		
" tumor from face			1	
Hæmorrhoids		3	2	3
Fistula in ano		1	1	
" lachrymal				
Paracentesis, abdominal		1	2	
" thoracis				
Operations on eye-lids		1		
Palmar abscess				
Fracture in elbow				
" of right leg				
" of clavicle				
Strangulated hernia, inguinal				
Bubo (syphilitic)				
Removal of bullets				
" of floating cartilage from knee-joint				
Amputation of toe				

SUMMARY OF MONTHLY REPORTS—*Concluded.*

DEC'R.	JAN'Y.	FEB'Y.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	Total or Av'ge.
382	389	383.7	419	449.6	476.3	504.2	513	436
40	37.6	49.1	48.2	59.3	65.8	79.5	79.7	.....
16.3	27	32.5	24.6	30	25.5	23	20.5	.....
9.3	10.2	6.5	6.9	7.8	8.2	8.2	8.1	.....
3.5	5.3	3.5	2.1	6	7.6	4.3	5.2	.....
251	262	151.5	186	195	220	214	211	.....
94.6	136.6	83.5	59	149	206.5	110.6	135.6	.....
354.6	398.6	235	245	344	426.5	324.6	346.6	.....
1	1	.....	3	1	1	1	2	12
.....	.....	1	.....	.....	.....	.....	.....	.....
$12.40	$9.70	$13.10	$15.50	$7.50	$11.80	$6.00	$7.45	.....
444	444	292	338	353	356	311	306	.....
241	253	288	297	346	381	396	382	.....
685	697	580	635	699	7 7	707	688	.....
101	112	112	123	128	98.5	.....	.....	.....
2	2	3	10	8	4	4	4	.....
3	2	5	3	4	3	1	.....	.....
.....	.....	.....	.....	2	1	2	.....	.....
.....	.....	1	.....	.....	1	.....	.....	.....
.....	2	.....	.....	.....	.....	.....	.....	.....
2	2	.....	.....	3	.....	.....	1	8
.....	.....	.....	.....	.....	.....	1	.....	.....
.....	.....	.....	1	.....	2	1	.....	.....
1	1	.....	3	.....	1	1	2	.....
1	.....	.....	5	2	.....	1	3	.....
1	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	1	.....	1	26	5	1	.....
.....	2	.....	.....	.....	1	.....	.....	.....
1	.....	1	.....	.....	.....	.....	.....	.....
.....	.....	1	.....	1	.....	.....	1	.....
6	3	1	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	.....	1	.....	.....
.....	.....	.....	.....	.....	.....	1	1	.....
1	1	.....	1	.....	.....	.....	.....	.....
.....	1	.....	1	.....	.....	1	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
6	3	1	.....	.....	.....	.....	1	20
.....	.....	.....	.....	.....	.....	1	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	4	1	.....	.....	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	1	.....	.....	.....	.....	.....
.....	1	.....	1	1	.....	.....	.....	.....
.....	1	.....	1	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	1	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	1	.....

ARTICLE IV.

RUPTURE OF LEFT KIDNEY. Report of a Case, with Autopsy.

By R. N. ISHAM, M.D.

July 15, 11:30 A. M., Ed. Rillen, while at work on a locomotive, slipped and fell from the gangway through a clear space of four feet, striking upon his left side across a wooden horse. I saw him at 2 P. M., nearly three hours afterward, and found him in a condition bordering upon collapse, as if from internal hæmorrhage. Countenance pallid; expression anxious; pain referred to the region of the diaphragm; surface of the body covered with a cold perspiration, and pulse hardly perceptible at the wrist. No visible sign of injury on inspection. Percussion gave an area of dullness in the right hypochondriac region, over a larger extent of territory than natural, and on drawing off the urine, it presented characteristic appearance of hæmatine, being of a smoky brownish color. Reaction was accomplished in a few hours, and without any continuance of the hæmaturia. The case progressed favorably for five days, till convalescence was apparently fairly established. During that interval of quiet there was but little pain, no febrile excitement, no disturbance of the stomach, and no sign of peritoneal injury.

On the morning of the ninth day, after a movement of the bowels and considerable exercise on the preceding day, he was suddenly seized with the most violent paroxysms of pain, accompanied by loud cries, and referred to the lower portion of the abdomen and cord. I found him again presenting signs of collapse, with incessant vomiting of a greenish fluid, and supporting the scrotum; he was positive of a rupture. Chloroform was administered, and the examination made of the patient showed an infiltration or dissection of the infundibuliform process with blood, reaching to the scrotum or tunica vaginalis. Considerable fullness in the left hypochondriac and lumbar region, could be recognized by palpation and percussion.

From this time, during the following days, the symptoms were those of peritonitis, at first circumscribed, then general; a

thready, quick pulse and heightened temperature until the morning of the 20th, when he suddenly expired, having only a few hours previously expressed himself as much improved and feeling better.

Recognizing the character of the injury as laceration of the kidney on my first visit, I believed that a recurrence of the hæmorrhage had taken place on the occasion of the relapse of the symptoms; and, on the afternoon of the 19th, I made a tentative exploration of the left lumbar region with a small needle and syringe, and found that I was able to evacuate liquid blood, but using an aspirator with a larger needle, I was only able to withdraw about four oz. of blood, with fragments of clots, which satisfied me that the effusion was coagulated. I had refrained from any operative interference, because the attendants had noticed a fæcal odor to the vomited matters (as they supposed), and the persistent vomiting after the relapse suggested to me the probability of a contused, strictured and gangrenous intestine.

Autopsy July 20, 3 P. M. Body five feet eight inches in height, weighed 136 pounds. No mark or discoloration on the body. Abdominal section showed the intestine moderately distended by gas, and discolored through the mesentery by sanguineous injection. It presented no other lesion, and, after its removal, a large distended, circumscribed collection of blood was discovered in the right lumbar region. Behind the peritoneum there was a collection of six to ten oz. of sero-purulent fluid. This collection of blood was dark-colored, coagulated, and contained several concentric layers of partially organized fibrinous clots, as is represented by aneurismal sacs. In this was found the remnants of the kidney, as I now show you, absolutely rent and smashed in three parts, and two-thirds of it disintegrated and almost unrecognizable, except its capsule—so intimately blended was it with the coagula by dissection of the hæmorrhage. There were evidences of gangrene progressing in the peritoneum and subperitoneal tissues, extending to the pelvic cavity and over the bladder.

There was a singular absence in this case of the sign of ruptured kidney so generally spoken of—that of a frequent desire to void the urine, which can only be explained by reason of the most complete destruction of the gland by the injury, and the

complete isolation of it by the effused blood during the first few days after the reception of the injury.

The most reliable sign of laceration of the kidney, taken in connection with the external symptoms, is that of the hæmaturia; but in some cases this may not be present or may not be recognized. Thus, Erichsen mentions a case where the kidney was completely smashed, as in this one, without any appearance of this sign, no bloody urine having found its way into the bladder; still, the recurrence of this sign, in connection with an injury competent to rupture this organ, may be assumed to be pathognomonic, and its appearance should always be looked for as an aid in the diagnosis of lumbar injuries of severity—even to the resort, if necessary, to catheterization. In this case, there was enough urine secreted by the mutilated remains of the kidney to cause gangrene and sero-purulent effusion.

Laceration of the kidney is a regularly fatal accident, and chiefly due to the extravasation of urine which occurs when the capsule is torn. Of sixteen cases collected by myself, but one recovery took place, and in this instance, a case of gun-shot injury, a bit of clothing was wedged in the gland, and came away after many months. During this time more or less urine escaped through the fistula. The wound healed at once. The foreign body escaped. The other cases were free from hæmorrhage, gangrene and suppuration, and death occurred in six to fourteen days.

I am convinced that in these cases a provision should be made for drainage, and in cases of destructive laceration, as would be indicated by excessive hæmorrhage, removal of the entire remnant of the gland be performed. The case of recovery just cited shows the good effects of a provision for drainage, and this which I have reported fully establishes the fact that if the mutilated organ had been removed, the patient might have recovered; or, at least, the only chance of recovery would have been offered to him by so doing.

The first case of removal for injury, I find was by Bremdt (Vienna) in 1873; that of a young man stabbed with a knife, operated upon four days after the injury, followed by recovery. Inasmuch as this operation—removal of one kidney—presuming

the remaining one to be sound, is very successful; that the approach to the kidney is safe and easy; that in exploratory incisions the peritoneal sac need not be disturbed, I am further convinced that this procedure should be included in the measures of treatment of such cases.

ARTICLE V.

REPORT OF TWO CASES OF TRAUMATIC TETANUS, WITH RECOVERY. By F. W. STEBALTS, M.D.

CASE I.—July 16 of the current year, I was summoned to attend H., a boy thirteen years old, who was complaining of stiffness of the whole body. He had trismus to such a degree that only a little fluid could be swallowed, the jaws opening one quarter inch. The neck was stiff and swollen. There was a slight rise in the temperature, restlessness, sleeplessness and constipation. Upon inquiry it was found that the patient had shot himself in the hand with a toy pistol the 4th of July. The wound had subsequently healed. On July 14 he fell into a ditch full of water and got drenched. Tetanus supervened in the next few days.

At first, looking upon the case as one of rheumatic tetanus, I prescribed ten grain doses of salicylate of sodium, to be taken every two hours. I also ordered effervescent citrate of magnesia to move the bowels.

July 18, the bowels had moved, the patient was improved so that he could open the mouth much wider, and he could swallow tolerably well. The salicylate was continued, and the bromide of potassium was given at night for the restlessness. A few days later the patient was able to be out, and subsequently entirely recovered.

CASE II.—July 18, I was called to attend V., a girl fifteen years of age, who for three days had had stiffness of the neck, difficulty in opening the mouth more than a few lines, inability to move, and difficulty in swallowing even liquids. I was called just as spasms of all the muscles were setting in, the spasms being more marked in the muscles of the neck. There was constipation, fever and sleeplessness. Upon examination, it was found

that the patient had been shot in the palm of the hand on July 4th, and the wound, which had not completely healed, was marked by a large cicatrix.

The treatment in this case consisted of citrate of magnesia, which moved the bowels after two days. She took ten grains of chloral and fifteen grains of bromide of potassium every three hours. This produced sleep. After a couple of days the jaws could be opened half an inch, and the general stiffness had slightly diminished. I then added one-fourth gr. of the solid extract of belladonna to the preceding treatment. On the third day, I added tonic doses of quinine, which was discontinued after two or three days, and meanwhile the fever had disappeared.

A week after the beginning of the treatment, the patient could open her mouth an inch wide at times, but the spasms sometimes recurred, when the trismus was more marked, and also the stiffness of the body. Motion returned in the arms after fourteen days, and then in the legs, so that she could be up around, although there was yet difficulty in opening the mouth. I now added the extract of cannabis indica, one-fourth grain, to the bromides, and gave the two three times a day.

After she was able to be out, that is, in the first week of August, I gave the elixir of quinine, iron and strychnia three times a day, and a month after the beginning of the sickness the patient was entirely well.

802 *S. Halsted St., Chicago.*

RUSH MEDICAL COLLEGE opened its session Tuesday, September 26, 1882, with an introductory address delivered by Prof. Norman Bridge. The building has been thoroughly renovated since its last session. They have matriculated four hundred and seventy students.

WE are pleased to learn that Dr. Edw. W. Jenks, who recently established a gynæcological hospital at Geneva, Illinois, is meeting with good success He finds the building entirely inadequate for his purposes, and is making additions thereto.

Hospital Reports.

ARTICLE VI.

COOK COUNTY HOSPITAL, CHICAGO.

CASE OF TETANUS, TREATED BY NERVE-STRETCHING. RECOVERY.

The following is a condensation of the notes taken of the case by the house surgeon, Dr. Mary E. Bates.

Frank Periolat, æt. nine years, had his right foot and leg run over by a street car, June 16, 1882. He was admitted to the hospital the same day. He gave evidence of previous good health, and the shock following his injury was not severe. Examination revealed extensive laceration of the soft parts, a contused wound of the foot, and a compound fracture of the leg, necessitating amputation, which was performed the same day by Dr. Baxter, attending surgeon. The patient having been anæsthetized, the leg was amputated between the upper and middle third, posterior and anterior flaps being brought together, after ligating the vessels, with catgut. A rubber drainage tube was left in the wound, and the flaps were united with silk sutures. The pulse beat 106 a minute, and the temperature of the patient was 92° Fahrenheit. He made a slow but full reaction.

In the forenoon of June 17, patient's pulse ran up to 128, and his temperature to 104.6. He was restless, but did not manifest any pain. He received half a drachm of paregoric twice. He took some breakfast, was given a sponge bath, and took three grains of quinine sulphate three times a day. That day his bowels moved. In the afternoon his pulse was 132, and his temperature 103.4. The next day the pulse returned to 110, and temperature 100.8.

June 19, the dressings were renewed. There was moderate suppuration. A smaller drainage tube was substituted. The pulse and temperature remained about stationary till June 30. The sutures and drainage tube were removed June 23, and the dressings changed. There was a slight amount of suppuration. June 28, only a superficial wound remained.

July 1, patient complained of pain and stiffness in the back of his neck, with inability to open the jaws more than one-fourth inch. This condition the patient first noticed the morning of the previous day.

July 1, patient received by hypodermic injection one sixty-fourth of a grain of physostigma and salicylic extract at six P. M., again at 8:30, and at 9:30. At midnight he had spasms of the glottis, and symptoms of opisthotonos.

July 2, one A. M., he received one sixty-fourth gr. of physostigma in the same manner as before, and took per orem 24 grains of potassium bromide and 15 grains of chloral hydrate, in solution. The pupils were moderately dilated, and patient was quiet. At 2:25 A. M. his pulse was 90, and the pupils were well contracted. Patient asleep. The injection was repeated at 3:15, and at 4 A. M. the jaw was slightly relaxed. 5:30, pupils dilated; injection repeated; pulse 104 to 99.5. 8 A. M. another injection, and 25 grs. of bromide with 15 grs. of chloral per orem. Patient could open the jaw three-eighths inch. The stump of the amputated limb was re-dressed. It looked well. Physostigma was given by hypodermic injection at 11, 12, and at 1 P. M. The jaws opened one-fourth inch. Injections were repeated at one and a half hours interval. Pulse was 122; temperature 100.6. Very little pain was complained of in the back of the neck and head. The risus sardonicus, which had been present some time, now disappeared; spasms ceased. One twenty-fifth gr. physostigma was given every hour. About midnight slight spasms occurred.

July 3, injections continued, except that a few doses were taken per orem instead of hypodermically. The pupils remained dilated; the pulse was 106, and the temperature 100. The risus sardonicus, a drawing downward of the corners of the mouth, recurred about 10 A. M. Injections were given nearly every hour.

July 4. Pulse 132; temperature 102.1 The hypodermic

injections of Calabar bean were given every one and a half hour. Patient had convulsions at 8 and 9 A. M., at noon, and at 2:20 and 4 P. M.

July 5, 11 A. M., the patient was etherized, the stump was opened and scraped, one-eighth inch of a nerve was removed, but no spicula of bone nor any other source of irritation was found. The granulations were flabby. A drainage tube was re-introduced into the wound, and some sutures applied, and stump dressed antiseptically. Dr. E. W. Lee made an incision below the gluteal region, two inches in length, and the sciatic nerve was stretched. The anterior crural nerve was also exposed and stretched. Both incisions were antiseptically closed after drainage tube had been introduced. The pulse was rapid, and not very strong. Half a drachm of brandy was given hypodermically. The patient slept all the afternoon under the influence of the ether. In the afternoon his pulse was 121, and temperature 101. At 8 P. M. bromide of potassium with chloral were given, together with one-sixteenth gr. of morphia, which latter was repeated at 9 P. M., and the two former at 10:30. The pupils were contracted, and the pulse was 132.

July 6, 12:30 A. M., the patient had convulsions, which were somewhat controlled by chloroform given by inhalation. At 1 A. M., the bromide and chloral were repeated, also at 2, 3, and 4 A. M. Pupils contracted. During the above convulsions, the tongue was protruded and livid, and there was opisthotonos and tonic spasms of the voluntary muscles; trismus; rapid and stertorous breathing; threatened asphyxia. The chloroform administered relaxed the muscles. The convulsions lasted ten minutes. The following anæsthesia was complete. At 4 A. M. another severe convulsion set in, which was controlled in the manner of the previous one. The chloroform relaxed the pupils. At 7 A. M. one-eighth gr. of morphine was given hypodermically. The pupils contracted, and there was a tonic contraction of the muscles of the neck. 8:30, bromide, chloral, and morphine were given, and the two first were repeated hourly for nine hours. 7 P. M., convulsions, less severe than and treated as the preceding ones.

July 7, hypodermics of morphia were given hourly for six hours. Pulse 118; temperature 99.9. There was no spasm that

night. Bromide and chloral were administered at 9 and 10 A. M., and the patient could open his mouth an inch. Morphine was given alternately with chloral and bromide every hour or two till midnight, when there was another attempt at spasm, and stertorous breathing.

July 8, 4 A. M., some signs of spasm; 8 A. M., severe convulsion, controlled by chloroform; former treatment continued. That day, the drainage tubes were removed from the incisions over the sciatic and crural nerves. The stump of the amputated limb was dressed, and a sanious material was discharged. After irrigation, antiseptic dressings were re-applied, and the treatment continued. At noon the patient drank plenty of milk and coffee. The bromide and chloral mixture was now given every two hours, alternately with hypodermic injections of morphine. Lavements were given to move the bowels, which, however, had been regular till that day, and they moved freely the next morning. The same treatment was continued till July 10, after which the two mixtures were given every three hours.

July 10, pulse 126; temperature 100.5. July 11, there was yet some trismus, but the patient could open his mouth wider. There was a good deal of salivation. July 15, the pulse was 110, and the temperature 99; he was feeling better. Patient subsequently got well.

ROCKFORD, ILL., AUG. 15, 1882.

MESSRS EDITORS:—If a couple of feet of small rubber tubing be attached to an ordinary "finger-stall," such as is found in most drug stores, and its tip, sewed to an elastic band, be pushed into the ear, the stalled finger will convey sounds, in percussion, where nicety is requisite, far better than the ordinary way. It is to percussion, what the stethoscope is to auscultation. An apparatus (cost 28 cents) which I devised yesterday, worked nicely. Should this be worth publishing, use it.

Yours truly, E. C. HUSE, M.D.

Society Reports.

ARTICLE VII.

CHICAGO MEDICAL SOCIETY. Stated Meeting, October 2, 1882.
Dr. J. H. Hollister, President, in the Chair.

The President made a few appropriate remarks, welcoming the members to the regular re-opening of the meetings of the society after their summer vacation; and the secretary read the minutes of the last meeting, which were voted approved.

A discussion of rupture of the kidney being in order, Dr. R. G. Bogue remarked that the injury should be looked upon as one of rare occurrence, and most liable to prove fatal. One case had come under his observation, which resulted in death in four or five days. Referring to Dr. Isham's paper on the subject at the last meeting, he commended the doctor's suggestion to establish a fistulous opening for the drainage of the urine, as its extravasation led to gangrene, and brought about the fatal result.

Dr. James H. Etheridge read a paper on removal of both ovaries, published in this issue of the JOURNAL. A lively discussion ensued. Dr. T. D. Fitch was in favor of the operation when indicated.

Dr. E. W. Sawyer had seen Battey's operation performed several times. One patient on whom Dr. Battey operated some years ago, had told him that all sexual desires had been abolished in her by that operation. An earlier appearance of hair on the face, and various signs of premature old age, were also to be seen in such cases.

Dr. Roswell Park, just returned from an extensive trip in Europe, had discussed the subject with the leading gynæcologists of the Continent. Opinions differed. A former assistant of

Lawson Tait had made the remark that as yet, all the operations of oöphorectomy had been performed by young men; and, Dr. Park added, the present instance is not an exception to the rule.

Dr. E. Ingals had witnessed the operation hundreds of times in the case of swine. It was altogether devoid of danger, required no skill, and was invariably successful. It was of the same import as castration in the male, and in either case, the operation was followed by cessation of sexual acts, and anything pertaining thereto.

Dr. Brower's paper on toy pistol tetanus was now read (see another part of the JOURNAL).

In the discussion which ensued, Dr. Belfield said that the only proof of the existence of bacteria in a fluid were: 1. Their reaction to staining agents; 2. Their cultivation in certain other fluids; and 3. Their mode of development or life history. It seemed to him that, in two diseases at least, they played an all-important rôle. He had given the subject much attention, and with the best advantages had pursued its study under the great masters. He had seen bacteria cultivated under the sealed glasses of microscopes, then inoculated into healthy animals, a rapid multiplication of these bacteria had taken place in the blood of these animals, soon resulting in death. The bacillus of splenic fever, and the fungus of active mycosis had ceased to rank with doubtful organisms. Much discredit had been brought on the subject of bacteria by the rash assertions of physicians who, not being microscopists, had derived erroneous views from their untrustworthy observations, and he placed Klebs in that category; but he considered Koch worthy of a good deal of confidence, considering the long space of time he had devoted to his investigations.

Prof. Lester Curtis asserted that there could be no doubt entertained in regard to the bacterial nature of the organisms which he had obtained from the blood of Dr. Brower's patient. He had cultivaled them under sealed glasses for days under the microscope. They rapidly developed into chains of eight or ten joints. These chains generally held the blood corpuscles. The proper precaution had been taken to exclude the presence of bacteria from other sources during the experiment.

Dr. Roswell Park remarked that there was a tendency among some pathologists to class tetanus among the infectious diseases. As to bacteria, some micrococci, and rod bacteria, were generally found in the discharges of healthy wounds, and seemed of no account. In Dr. Brower's case, the treatment most efficacious would rather indicate that tetanus is an infectious disease; yet it was possible that the contagium had escaped even the microscropical observations of the writer, since the bacteria found in that case seemed harmless.

To a query of Dr. Etheridge, Dr. Brower said that he considered toy pistol tetanus the ordinary traumatic form, and he doubted whether tetanus could ever be idiopathic. He looked upon the disease as one primarily involving the end organs of the nervous system, and approved of cutting or stretching the nerves concerned.

THE College of Physicians and Surgeons opened their new building with great *eclat* on Tuesday, September 26, 1882. Prof. A. Reeves Jackson delivered the opening address. Prof. S. A. McWilliams and Mayor Harrison made speeches appropriate to the occasion. The class is very large for a new enterprise; one hundred and twenty matriculated.

THE CHICAGO MEDICAL COLLEGE opened its winter session on Tuesday, September 26, 1882. The introductory address was delivered by Prof. M. P. Hatfield. The faculty of the college has been materially strengthened since its last session, and many improvements made in the college building.

THE WOMAN'S MEDICAL COLLEGE held its opening exercises September 25. Prof. E. F. Ingals delivered the opening address to the assembled students, showing them, in well chosen language, the best course to pursue in the study of medicine.

Reviews and Book Notices.

ARTICLE VIII.—THE PRACTICE OF MEDICINE AND SURGERY, APPLIED TO THE DISEASES AND ACCIDENTS INCIDENT TO WOMEN. By WM. H. BYFORD, A.M., M.D., Professor of Gynæcology in the Rush Medical College, etc. Third Edition, thoroughly revised and re-written, with 164 Illustrations. Philadelphia: Lindsay & Blakiston. 1881. Pp. 671.

In the preface of the first edition, Dr. Byford says his "object has been to furnish the students and junior members of the pro-profession a concise, yet sufficiently complete, practical and reliable treatise, to meet their wants in everyday practice."

How fully this object was attained in the first and second editions, may be judged by the verdict of the profession, for the second was soon exhausted, and has been out of print for several years, and I am sure a similar result will follow with the present edition, unless the edition has been unusually large. Of the changes of opinion and practice in this, as compared with former editions, he says: "The progress of medical science in the last decade, especially of that department to which this work is devoted, has made so many changes necessary that the present edition is almost a new book;" and he explains further by saying "that, surrounded as I have been by such a throng of active workers, the results of whose labors I have tried to assimilate, my former ideas have been necessarily greatly modified, and, I hope, improved also."

This frankness and modesty of the preface will be found to be characteristic of the whole work. The work of other writers in all parts of the world is carefully accredited to them, but his own

is so modestly stated that one has to search diligently to determine which parts of the work are original with the author—a fact in marked contrast with most writers; indeed, about the only way to determine which portions of the work are original is by the fact that they are not credited to some one else.

In the first five chapters, the author treats of the diseases of the pelvic organs in their anatomical order; the labia, the perineum, the vulva, the bladder and the vagina.

In rupture of the perineum, while he recognizes the possibility of a spontaneous cure under the most favorable conditions, he advises the immediate closure of the laceration by silver-wire sutures; should this fail, then the secondary operation, when the patient is in good health, and the tissues in condition to heal; and if they are not so, we must wait till they are before we operate.

In chronic cystitis, he recommends the rapid dilatation of the urethra under ether, instead of the artificial vesico-vaginal fistula as proposed by Dr. Sims, and practiced still by Dr. Emmet, as the simpler procedure, equally safe, and not requiring a second operation to close the fistula.

The importance of puerperal vaginitis is fully insisted upon. The causes producing it, and its effects in the production of vesico-vaginal, recto-vaginal and the other fistulæ, are carefully stated, and should be read and remembered by every physician called to attend a case of confinement. If the instructions here laid down for the prevention and treatment of puerperal vaginitis were carefully followed, there would be few fistulæ to be closed by operation.

The original method of operating upon fistulæ by Dr. Marion Sims, and the modifications of Drs. Emmett, Bozeman and Simon are fully described and amply illustrated, both as to the style of the operation and the instruments required, as well as the preliminary and after treatment of the patient.

Next follow four chapters on menstruation, its disorders and modifications, including puberty, menorrhagia, dysmenorrhœa, hematocele and menopause. The chapter on puberty should be carefully studied by every physician, teacher and mother in the land, that they may fully instruct those committed to their care as to their exercise, associates, dress, education and amusements,

during this most important transitional period from girlhood to womanhood. For there can be no question that many of the most intractable and almost incurable cases of displacement, chronic cellulitis, and chronic peritonitis can be directly traced to this period and to the errors committed then for their origin, and that lifelong sterility, or death at the first confinement, are the frequent termination of diseases begun at puberty.

Under the topic menorrhagia, the author incidentally describes the attainments the gynæcologist should possess. It would be well if all who aspire to this title would ponder these sentences, pp. 136-7: It will not be regarded as making an undue claim to say that the practice of gynæcology requires more thorough theoretical and practical familiarity with the details of all the branches of medicine than any of the so-called specialties. We are not prepared to treat the most common of female diseases without being able to scan with scientific scrutiny every organ and function of the body. For not until we can compete successfully with the general practitioner, the surgeon, the clinist and the neurologist in the therapeutic processes of their respective departments, may we hope to exercise, in the highest sense, the office of the gynæcologist.

In the treatment of dysmenorrhœa caused by stenosis, while the author seems to advocate the method of dilatation by the use of the slippery elm or laminaria tent, or the sponge tent as directed by Dr. Storer, yet he speaks first of the method by incision, and describes in minute detail the operation of Dr. Sims and the modifications of Dr. Peaslee, without comment, and leaves the reader in doubt as to which method is to be preferred, or how the cases are to be selected for each plan of treatment.

Metatithmenia, or misplaced menstruation and peri-uterine hematocele are treated as synonymous, and vicarious menstruation is not mentioned.

Menopause is not considered, as Dr. Tilt thinks, the cause of many diseases, though it is contemporaneous with a number of the most dangerous affections; still, we need not fear that the change of life will be disastrous, either as a cause of disease, or by injuriously modifying those already existing.

In chapter eleven, acute inflammation of the unimpregnated

uterus is insisted upon, as of other organs, in marked contrast with some recent writers on gynæcology, who teach that there may be congestion of the unimpregnated uterus, but that it can never, or very rarely, go so far as inflammation of the deeper structure of the uterus, but affects only the mucous membrane.

In chapters twelve to eighteen we have perhaps the most important part of the work to the general practitioner, treating of the reflex and local symptoms of uterine disease, their pathology, etiology and diagnosis, with the general and local treatment. The chapters on the reflex and local symptoms are especially full and complete, and no intelligent physician, having fully studied these chapters, and then examined a considerable number of patients presenting these symptoms, as directed in the chapter on diagnosis, and adopted the general and local treatment here advised for a few months, could doubt that the sexual system of the female, in the state of disease, exercises a very morbid influence over nearly the whole organism, and that the only sure and permanent relief is found in the cure of the diseased condition of the sexual organs.

But these chapters cannot be described; they must be studied to be appreciated.

To Dr. Emmet, says the author, belongs the credit of first appreciating the importance of and appropriately treating laceration of the cervix. "It very seldom occurs to any man to have the opportunity of giving the profession so complete a description of the abnormal condition, and to perfect the process of cure, so that there is left to others no room for improvement;" a compliment well deserved and truthful, and yet in marked contrast to Dr. Emmet's book, in which he "aims to represent the actual state of gynæcological science and art," but does not allude to Dr. Byford as writer or worker in the field.

Dr. Byford alludes to cellulitis and local peritonitis as complications of laceration of the cervix, but does not speak definitely of the presence of these diseases as contraindications for the operation, though such surely is his practice.

A disregard of these contraindications has indirectly been one of the causes of the fatal result which occasionally follows this operation, and explains why some patients are injured rather than

benefited by the operation. It would have been well to have repeated the cautions given in displacements of the uterus. "It should be remembered that these adhesions are the result of inflammation, and generally local peritonitis, and that this last-named condition is often present in a subdued degree for a long time after the effusion resulting from it has hardened into a false membrane. This circumstance will be a standing caution to the considerate practitioner. It will be easy, by a little indiscretion in our manipulation, to arouse a more acute form of inflammation, and thus do much mischief.

"When there is tenderness behind the uterus, we cannot be too careful; indeed, we should always wait when there is good reason to apprehend local peritonitis, until every evidence of it has subsided, and this will generally require a long time, even if judicious treatment is employed."

And again, in speaking of replacing the retroverted uterus with a lacerated cervix and shortening of one of the broad ligaments, he says: "In all such cases, there is good reason to fear that there is a lurking chronic inflammation in the ligament to which the cervix is attached, which upon slight provocation will be aggravated and become acute."

The chapters on perimetritis and chronic perimetritis need to be carefully studied and their teaching remembered in operating upon the lacerated cervix and treating the displaced uterus.

Our author states his creed in regard to displacements in a a single sentence, and it should be remembered. "I believe that pre-existing disease is the cause of displacements of the uterus in the great majority of instances, and that the displacement is very seldom the cause of the disease usually associated with it."

The cautions in regard to the use of pessaries should be read, re-read, and always recollected. "Hyperæsthesia from inflammation of the uterus, especially in the acute and subacute forms, is incompatible with the use of pessaries. Immobility of the uterus from old adhesions must be be overcome before we can venture to use pessaries. Perimetritic inflammation in the acute, subacute and chronic forms, contraindicates the use of support." In all cases, the instrument should not only not cause pain, but should be attended with a sense of relief.

The causes of that rare but dreadful accident, inversion of the uterus, are fully stated, and should be carefully studied by every accoucheur, for the inference from statistics is that the accident is nearly, if not quite, avoidable, for no cases were observed either by Dr. West or Dr. McClintock in the London Maternity, Charity, or the Dublin Lying-in Hospital—140,000 cases.

Two plans of treatment of the chronic form are described; the one by Dr. White, of Buffalo, and the other by Dr. Tyler Smith, of London.

Dr. White's repositor in use is figured, but though Dr. Tyler Smith's method is preferred and used by the author, neither the instrument nor the manner of its use are figured. There is, it is true, a full description of the manner of using the elastic water bag and its action in reducing the inverted uterus, still, a figure would as much aid the student and the physician who are not used to the instrument, as it does with Dr. White's instrument. "The fact cannot be too forcibly impressed upon our minds, in undertaking this operation, that gentle firmness is the proper expression for the force to be employed. Perseverance, instead of violence, is both more certain, successful and secure, in overcoming the resistance of muscular fiber anywhere, and this is especially true with the uterus, the strongest muscle in the body."

In cases where restoration is proven impossible, amputation is the last resort, and the methods are described, preference being given to the galvano-cautery.

The chapter on diseased deviations of involutions of the uterus is one of the most complete and satisfactory in the whole work. It is divided into the topics, 1. Delayed involution, 2. Subinvolution, and 3. Hyperinvolution.

The term involution is applied also to the uterus at the menstrual period, the changes recuring before or after the menstrual act being analagous to the evolution and involution of pregnancy, though of course less in degree.

"The term and process of involution extend to the changes observed—all the genital organs, the lacteal glands, the ovaries, uterus, vagina, Fallopian tubes, uterine ligaments and perineum."

And the importance of subinvolution is not exaggerated in the statement "that more of the chronic congestions of the uterus

originate in the puerperal and menstrual subinvolution, as here explained, than in any other condition."

The treatment is described as preventive and local.

"During labor, everything should be conducted with the view of preserving the integrity of the soft parts, because damage to any of the parts concerned in labor is pretty sure to be followed by subinvolution.

"The more physiological a labor is made, and the more skilfully conducted, the less the tendency to subinvolution. After labor, complete contraction should be brought about and maintained, not by mechanical irritation, but, if need be, by the use of ergot and vaginal injections of hot water. The most assiduous attention should be especially given to control all inflammations that follow labor.

"More attention and care in conducting patients through cases of abortion and premature labor should be practiced than is usual.

"In chronic cases, the local treatment is of prime importance. If there is laceration of the cervix or perineum, it should receive attention; if misplacement, it must be corrected.

"The use of glycerine tampons and hot water injections will be found applicable and beneficial in most cases. But there is another class of local remedies that I believe to be more serviceable than these, and that is local stimulants applied directly to the mucous membrane, such as iodine, carbolic acid, tr. of iron, etc. The vaso-motor nerve supply of the whole uterus is so intimately connected that it may be considered a unit, and no part of it can be stimulated without affecting the whole."

Cancer is described as of four varieties. 1. Medullary. 2. Epithelial. 3. Colloid. 4. Scirrhus; though the two latter are exceedingly rare. Of the prognosis of cancer he truthfully says, "it is a gloomy one. Indeed, there is no disease which so uniformly terminates fatally as cancer of the uterus. But the gloomy picture is in part relieved by the improved palliative means we now possess."

Of the many medicinal agents for a time enjoying the reputation of cancer cures, such as jaborandi, cundarango, etc., all but one are passed by in disappointment. To this one, chian turpentine, perhaps because it is the last, our author surely gives more

space than it justly deserves, devoting seven pages in small type to Prof. Clay's report of the successful use of this remedy in four cases, with other cases under treatment showing similar effects, and still other cases of cancer in other organs, with remarkable benefit.

But those who have used the chian turpentine in this country have been disappointed in its use, and even the turpentine furnished by Dr. Clay himself, and given according to his written directions, in one case, did not arrest the disease, but the patient went on rapidly to death.

While our author does not fully recommend the formidable operation of total extirpation of the uterus, he "yet hopes that some method of resecting it will some day be invented, which will be less difficult of performance and less dangerous in its results," and he commends highly the operation of Prof. Lane, of California, for removing the uterus by the vaginal method.

Three chapters are devoted to the description and treatment of fibrous tumors of the uterus. They are described as homologous growths of two varieties, the firmer and softer, or myoma and fibroma, but probably both should be named myoma, as they each consist of undeveloped muscular tissue.

Chronic hyperæmia seems to be the condition most likely to favor the formation of these tumors, and a case is described in which it seems to have been the cause. The location of these tumors is fully described, and the symptoms they present during their development graphically narrated, as well as their complications of pelvic inflammations, such as peritonitis, cellulitis, etc.

By the adhesions produced by these local inflammations, new sources of vascular supply are acquired, and new vitality at once imparted to them. Subserous tumors not infrequently in this way take on remarkable activity, after having been stationary in their growth for some time.

The complication of pregnancy occurring with these tumors is fully described, and the dangers pointed out; as miscarriage, obstruction in delivery, and incomplete contraction of the uterus, allowing hæmorrhage. The effect upon the tumor is also noted; namely, its complete removal, in not a few cases, during the involution of the uterus following parturition.

The treatment is naturally divided into two divisions, the treatment of the symptoms and the radical cure of the disease, though the means employed for the one purpose may be applied at times also for the other as well.

As the mechanical pressure of these tumors upon the pelvic viscera is a source of great annoyance to the patient, and at times even of danger, it is important to notice the author's directions in such cases; to elevate the tumor before strong adhesions are formed in the pelvis.

"This may sometimes be done by placing the patient in the knee-elbow position and opening the vagina by two fingers, and then pressing the growth upward. The powerful influence of the atmospheric pressure called to our aid by the position and opening of the vagina, is a very material aid in the process of elevation. If this is not sufficient, we may pass the fingers into the rectum, and thus elevate the tumor."

In the medical treatment of these tumors, but a single remedy is recommended; ergot, "and for this remedy it is claimed, 1, that when properly administered, it frequently very greatly ameliorates some of the troublesome and even dangerous symptoms of fibrous tumors of the uterus, e. g., hæmorrhage and copious leucorrhœa; 2, it often arrests their growth and checks hæmorrhage; 3, in many instances it causes the absorption of the tumor; occasionally without giving the patient any inconvenience. 4. By inducing uterine contraction, it causes the expulsion of the polypoid variety. 5. In the same way, it causes the disruption and discharge of the submucous tumor."

A summary is given of 101 cases in which ergot had been used, by 23 different physicians. Of these 22 cases are reported as cured; 39 tumors diminished in size and hæmorrhage stopped; 19, hæmorrhage relieved, but tumor not affected; 21, no result. Such results as these surely warrant a still more extended use of the remedy, and we doubt not a more extensive experience will corroborate these results. The modes of giving ergot vary with different patients and different physicians; some preferring to use it hypodermically; others by the stomach; others still by the rectum; while some will use it by two or more of these methods at the same or different times. But the result is the same, what-

ever the method of exhibiting the remedy; "and it should be given in the way in which it is, at the time, the best borne by the patient, and in doses sufficient to produce its physiological effect.

"The failure to get any good results in the hands of some practitioners must be attributed to the use of a drug of poor quality, or insufficient quantity, or for too short a time. The treatment of some of my most successful cases extended over many months" says our author.

"The beneficial action of the drug will depend upon the degree of development of the muscular fibers of the uterus and the position of the tumor with reference to the serous or mucous surfaces. The nearer the mucous surface, the better the effects. We can often," he says, "select the cases in which good results may be expected. There are four conditions which are usually reliable for this purpose. They are smoothness of contour, hæmorrhage, lengthened uterine cavity, and elasticity. A smooth, round tumor denotes, for the most part, uniform textural development; hæmorrhage, a certain proximity to the mucous membrane; a lengthened cavity, great increase in the length and strength of the fibers; and elasticity assures us of the fact that cartilaginoid or calcareous degeneration has not begun in the tumor.

"An uneven, nodulated tumor may be composed of many separate solid masses. These displace and prevent the growth of the fibers to such an extent as to render contractions inefficient.

"When hæmorrhage is not present, the tumor is probably near the serous surface, and consequently not surrounded by fibers.

"A short cavity denotes short undeveloped fibers, while hardness is indicative of unimpressible induration. Although I have had no experience in the use of ergot in such cases, I should expect large fibrous cystic tumors to resist its action.

"From this view of the subject it will be seen that I freely admit that there is a large number of cases in which ergot cannot produce any good results, in consequence of their nature, but there is another reason of equal moment why ergot may fail to act upon such cases as would seem to be favorable, on account of the worthlessness of the drug and its preparations."

"When all these causes of failure are considered, the variety of experience met with in the reports upon its trial in the treatment of these tumors is not surprising. It should not, however, be discouraging, but prompt us to more care in selecting the cases and securing reliable preparations of ergot. I have implicit faith in the action of ergot when all the conditions I have pointed out are present. I do not believe it to be uncertain in its action. In addition to the above conditions, I believe perseverance an indispensable condition to success, as it often requires several months to get the best results.

"In concluding," he says, "I desire to disclaim any expectation that ergot will supplant other modes of treatment. The expert surgeon will, as he always has, use his instruments to the neglect of remedies less summary in their effects, and in his hands the maximum of safety will obtain, but there are very few general practitioners who ought, or would be willing to undertake the enucleation of fibroid tumors of the uterus.

"I do claim, however," he says, that the judicious gynæcologist "will lose fewer patients, and secure more cures, by the administration of this medicine, than can be looked for from surgery. I am not surprised that others who have written upon the subject should be incredulous as to the effect of ergot, and the way I account for it is, what I think I can see in their practice as related by themselves, that they do not give the remedy a fair trial. They fail to give it in large enough doses, and do not persevere long enough in its use. The treatment of some of my most successful cases extended over many months.

"When the pains that indicate efficient action, and always precede disruption and expulsion, occur, the practitioner generally becomes alarmed, gives anodynes, and withdraws the medicine, abandoning the case and declaring that ergot is a dangerous remedy. If he had witnessed the same, or even severer pains in labor, he would have encouraged them, and so he should do in expelling the tumor, and the result would be a safe delivery. The tumor would be expelled and the patient relieved.

"But if," says the author, "ergot acts so powerfully in expelling submucous tumors, is there not danger that it may rupture the capsule of the subserous variety, thus expelling them

from the uterine substance into the peritoneal cavity, and endanger the life of the patient by causing peritonitis? But there is a great difference in the influence exerted by the uterine cavity on the two varieties of tumor. In the submucous variety, the whole power of the uterine contractions is exerted toward the tumor, driving it in the direction of the os uteri. When the tumor is subserous, the contractions are from the axis of the tumor; their effect is merely to render it pedunculated, and lessen the vascular supply going to it. The main effect will therefore be to check the rapidity of its growth, or to prevent its further enlargement altogether.

"Another question is, does the long-continued administration of ergot induce the gangrene of the extremities that has been attributed to it? And still another, does it cause inconvenience or danger by affecting seriously the nervous centers? After having given this remedy in frequently repeated and large doses, and observed its effects with great care for a number of months consecutively, I can say that I have not noticed any such consequences, though I am not prepared to assert that there is, and always will be, immunity from such effects. The worst symptoms I have witnessed are the severe and persistent pains, and the apparent inflammation of the uterus and peritoneum, where its action has been excessive. These symptoms have, however, been invariably controlled by proper treatment, and have in no instance proved disastrous. In other cases, when the tumor was slowly disintegrated and expelled, a moderate form of septicæmia has invariably occurred, but this condition has not been sufficiently grave to excite alarm in my mind.

"Whether the observation of the profession at large will or will not bear me out in my earnest belief in the curability of some of these tumors by the means I am now teaching, I do not know; but I am sure there is so much logic in the method that it deserves a more extensive trial than has hitherto been made of it."

Of the treatment of these tumors by electrolysis, he says: "In certain desperate cases this seems to me to be a valuable resource; although in the hands of those brilliant surgeons (Drs. Kimball and Cutter), their mode of performing electrolysis seems

not to be attended with the dangers one would expect to follow such free penetration of the abdominal cavity and the galvanic excitement of these growths; most of us would hesitate to follow their example." "They will, doubtless, pursue this mode of treatment sufficiently to test its efficacy and its danger, and thus enable the profession to properly estimate its value." "Possibly it will be found that very much smaller electrodes and a less powerful battery may produce effects sufficient to dissipate these tumors, and at the same time greatly reduce the hazard of the operation."

The surgical treatment of fibrous tumors is described under the subdivisions, "Removal of polypoid tumors, Enucleation, Laparotomy, Laparo-Hysterotomy and Oöphorectomy."

In the removal of polypoid tumors, danger may arise from, "1st. Laceration, contusion, or other damage to the uterus, resulting in hæmorrhage or inflammation; 2d. Incomplete ablation—the remaining portion producing sepeticæmia; 3d. Shock sometimes following protracted efforts at removal. Torsion and amputation are the methods preferred for the removal of polypoid tumors, amputation being performed by the scissors, knife, ecraseur or galvano-cautery wire.

"Hæmorrhage, which was formerly most feared, is now considered of minor importance.

"The removal by torsion is preferred when practicable, as there is no danger from hæmorrhage or septicæmia, as the vessels are torn and no portion of the tumor is left to slough."

If the cervix is not already sufficiently dilated to allow the proper manipulation, it is to be dilated before operating.

"Enucleation consists in splitting the capsule and turning the tumor out of its bed. The first step is thorough dilatation of the cervix, if it is not already sufficiently open to admit the fingers as far up into the cavity of the uterus by the side of the tumor as they can reach. If the vagina is small, it should also be prepared by dilating. An obstacle sometimes encountered is the imperfect separation of the tumor from the other tissues of the uterus by the capsule or the adhesion of the tumor to its capsule. If this condition could be diagnosed beforehand it would contra-indicate the operation for enucleation.

"The danger after the operation is to be apprehended from shock, hæmorrhage, inflammation and septicæmia. But septicæmia can be more effectually treated after this than after almost any of the other great operations, as the cavity of the uterus can be kept clean by hot carbolized injections.

"Laparotomy we may avail ourselves of for the extirpation of these tumors when less hazardous measures are either impracticable or unavailing.

"The incision in the abdominal walls is made in the same place and in the same way as for ovariotomy, though usually it will be necessary to make it much larger.

"If the tumor is pediculated, the pedicle is to be ligated with a double silk ligature, the tumor removed and the stump dropped into the abdomen as in ovariotomy.

"If the tumor is sessile, and the base too broad to be included in a ligature, the capsule should be freely opened and the tumor enucleated. After which, if the capsule is large, provision should be made for drainage through the uterine cavity, and the capsule closed with 'silver wire sutures.'"

We cannot understand why the author prefers silver wire to the silk or animal sutures.

"When the tumor is situated in the posterior wall of the uterus and small, it may be removed through the vagina by an incision through the posterior vaginal wall.

"In laparo-hysterotomy or the removal by abdominal section of both tumor and uterus and perhaps the ovaries also, the operator is to be especially prepared to stop hæmorrhage, as these tumors are very vascular and are liable to have extremely vascular extensions, and the vascular supply of the uterus is enormously increased as in pregnancy."

The application of the elastic bandage to the tumor before its removal, as recommended by Labbè, is especially commended, as by this means we save to the patient a large quantity of blood, which she can ill afford to lose."

"The elastic bandage is important, also, to control hæmorrhage until the vessels can be permanently secured."

The operation is considered "far more grave than ovariotomy, or even double ovariotomy, as by this the whole genital system,

with all its reflex capacities and sympathetic relations, is suddenly torn from its connections."

"In operations of this kind, conservative surgery," he says, "is of the greatest importance, and we ought never to remove the ovaries when we can preserve them."

But if we remove the uterus and leave the ovaries, we leave the patient, if she recover from the operation, in the condition of the unfortunate patient with congenital absence of the uterus but with active ovaries.

And it is in this condition—congenital absence of the uterus with active ovaries, that Battey's operation or Oöphorectomy is especially recommended. But the cases are not parallel, for in the congenital case there are not likely to be inflammatory adhesions about the ovaries to tease the patient and produce reflex effects, as there must of necessity be after operations in which the ovaries are left. So that, while removal of the ovaries and uterus renders the operation more hazardous at the time, it obviates the necessity of a subsequent oophorectomy.

Battey's operation, or oöphorectomy, was designed to artificially induce menopause, and in that way, it was hoped, relieve many of the intolerable and irremedial forms of oöphoro-neuroses that so often perplex the practitioner.

"The operation has also been repeatedly performed for the purpose of arresting the growth of fibrous tumors of the uterus, on account of the favorable effect the natural menopause so generally produces upon them, and in some instances with favorable results."

Our author credits Dr. Battey with "removing the ovaries for the purpose of artificially inducing the menopause," and then reminds the reader that menopause is not change of life, and that this condition—menopause—is something brought about by some of the very conditions for which Battey's operation is performed without producing change of life. But Dr. Battey, in a recent private letter, says: "The object sought in my operation is not the menopause, but the 'change of life by art.' It is applicable to cases where the menses are absent, or, in other words, where the menopause has already occurred."

"The mortality of less than 23 per cent in Battey's operation

certainly commends it. And if, as Dr. Mundè observes, the positive benefits of the operation were as assured as the favorable rate of mortality, the opposition would soon cease."

Dr. Maunder collected thirty-eight cases of oöphorectomy; of these twenty-nine recovered from the operation and nine died. And of the twenty-nine who recovered from the operation, twenty-five are reported as cured, two as not cured, and two not accounted for. But one, at least, of the twenty-five reported cured did not remain so—(Dr. Trenholme's case).

Our author very wisely says there is another side to this subject. "The general condition of the patients, who are the subjects of these nervous symptoms, is such as in part to account for their sufferings. And we sometimes find that a radical change in the circumstances under which they live will dispel their trouble. Muscular labor, out-door exercises, the loss of luxuries, when brought by inexorable bad fortune, have done wonders in the way of removing oöphoroneuroses."

Dr. Battey's three questions are repeated: 1st. Is this a grave case? 2d. Is the case incurable by any other known resource of medical or surgical art? 3d. Is it curable by the menopause or change of life? If all these questions are answered in the affirmative, the case is a proper one for Battey's operation; but if either cannot be answered satisfactorily in the affirmative, the case is one in which the operation is not justifiable.

Both Dr. Battey and our author prefer the abdominal method for operating unless the ovaries are much prolapsed and are certainly free from adhesions and the vagina large.

The results of the author's cases are that the patients are sterile and do not menstruate, but they are not unsexed in any other sense. "In morals, manners, appearances, affections, propensities and voice they remain the same."

Seven chapters are devoted to the diseases of the ovaries and their treatment. In describing the symptoms of ovarian disease, our author wisely calls attention to the fact "that the nerve supply to these organs is essentially a unit, and it is therefore nearly impossible for us to separate the general symptoms arising from the diseases of the pelvic viscera, into vulvar, vaginal, uterine and ovarian, though it is questionable whether all of the hystero-

neuroses should not be regarded as oöphoro-neuroses, that is direct or indirect morbid emanations from the ovaries themselves. But in these organs we have a circle of functions, to the perfection of which, soundness in all is essential."

The question is asked, are displacements of the ovaries always necessarily accompanied by serious local or destructive general disturbances; and the reply given, No. But in explaining the answer, a single reason only is given, "the *nervous susceptibility* of the patient, either congenital or acquired."

Now, while it is true that the same nerves are more sensitive in some persons than in others, and in the same person at different times, is not the more important explanation in the fact that ovaries are not always diseased, though displaced, and when they are not, there are few or no symptoms of reflex or local disease? This is also true of the uterus, which may be displaced, but if not diseased itself, and if it has not produced disease in the adjacent organs by its malposition, the patient will not suffer from "uterine symptoms."

As those patients suffering from ovarian diseases are usually anæmic or hydræmic, the indication is to improve both the quantity and the quality of the blood, and in this way improve the functional activity of the nerve centers. "Such cases being usually cases of blood exhaustion, rather than nerve exhaustion, and the treatment consists in turning these patients completely around in their habits and lead them to adopt measures that will make them form plenty of blood and fat.

"Dr. Wier Mitchell has taught us how to do this, and his system of managing such patients is admirable, but it is not always practical nor, indeed, necessary to adopt his method as a whole. Absolute rest is necessary only in cases of extreme prostration. In most cases, active exercise will be better than passive, but the exercise should be prescribed in quantity and kind, and enforced with exacting regularity and urged by a decision that will not fail.

"But the most important part of the treatment is the regulation of the food, the prescription of its items and quantity from day to day"—and these are fully stated. "If the food is not rejected by vomiting, or it does not irritate the bowels enough to

cause diarrhœa, I would not allow the want of appetite nor the inconvenience that may arise during digestion to be considered a reason for not taking it. Usually the stomach will become tolerant, and after a time the enriched blood, circulating through its glandular apparatus, will engender a relish for food, and the patient will eat with pleasure.

"With this, or some other equivalent method of feeding the patient, there should be associated some plan by which she can get plenty of fresh air, and have as much exercise as she is able to take. The exercise may be passive at first, but as soon as it is possible it ought to be active.

"As long as nutrition can be supplied, the patient will profit by exercise; but if nutrition is impossible, then, of course, exercise is impossible also."

The author belives "this course of management has resulted in a number of instances in averting the dangers and mutilation of the more heroic treatment of castration, by establishing a vigorous and tolerant condition of the nervous system, and thus curing the ovarian irritation. And this plan of treatment is applicable in other cases than displacements of the ovaries, in which there is ovarian irritation.

"In some few cases, when the ovaries are borne down by a displaced uterus, we may occasionally correct the displacement by a well-adjusted pessary, so far as to greatly improve the circulation in these organs, and thus remove a great element in the ovarian distress.

"But in the cases in which the symptoms are most grave, in retroversion and retroflexion of the uterus, the location of the ovaries in the cul-de-sac behind the fundus, renders the satisfactory adjustment of the pessary almost impossible, as the instrument is pretty certain to cause pressure upon these sensitive organs, and thus become intolerant.

"We ought not, however, to despair of accomplishing our object until we have exhausted our ingenuity in mechanical appliances for this purpose.

"And when every other measure fails either to render the condition of the patient bearable or save her from becoming a mental and physical wreck, we still have the resource furnished

us by Dr. Battey, of Georgia, namely, the removal of these organs.

"But we should remember that the operation is very dangerous, and that, if successful, it unsexes our patient in the sense that she is at least barren for all future time."

"When the ovaries are displaced so as to occupy the inguinal canal, the operation for removing them is less hazardous, and may therefore be resorted to with less hesitation."

The author relates a single case of simple acute inflammation of the ovaries, the only one he has observed without complications, there being no local peritonitis or cellulitis, and but slight metritis, with the bladder irritable and the vagina slightly tender.

The treatment consisted in a simple cathartic, poultices to the abdomen, rest, and anodynes as needed for the pain, and in six or seven days the inflammation was subdued and the patient convalescent, and in three or four weeks was entirely well, and remained so.

Three varieties of ovarian tumor are described; the cystic, fibrous and dermoid, the latter being found in other parts of the body and in the male as well.

The author gives a very full account of the various theories proposed to account for their origin, from the earliest times to the present. The most satisfactory and scientific is, that "at an early period of embryonic development, by some accident or imperfection of formation, an indentation in the blastoderm is produced, and, in the wonderful trophic energy of that period, this minute depression is enclosed by the approximation of its margins, and becomes an isolated cavity, and the growth and perfection of the embryo are accomplished, notwithstanding this early accident to the integrity of its envelope."

But we have not the space to reproduce even a sample of this interesting article, and we must refer the reader to the work itself, where he will find a full report of four cases, and a more satisfactory description of these strange tumors than can be found in any other work to which the English reader has access.

Fibroid tumors of the ovaries are so rare that they receive but a passing notice, but nearly six chapters are devoted to the eti-

ology, prognosis, diagnosis and treatment of the ordinary ovarian tumors—cystomata.

As to the cause of these tumors, our author does not agree with most writers, who "would trace all chronic enlargements to a scrofulous taint, but rather explains their origin by supposing inflammation of a low grade and somewhat chronic duration, causing thickening and induration of the indusium, so that it would not yield to the upheaving pressure of the ovisac and permit its dehiscence. When once thus commenced, the stimulus of increased secretion of fluid would produce a kind of hypertrophy in the involucra, which would permit of a further enlargement. But while inflammation is probably the cause of the beginning of the development of ovarian tumors, it does not seem necessary to their continued development, as the accumulation of fluid in a shut cavity with a secreting external surface is a matter of necessity, and the limit of its amount, for the most part, does not depend upon anything but the capacity of the involucra to grow, until interrupted by external circumstances.

"Prognosis. Unfortunately, there is almost no tendency to spontaneous recovery in ovarian dropsy. Probably not two per cent. but would, after a longer or shorter period, terminate in the death of the patient. But this does not properly represent the value of a life threatened by this affection. Some patients live a great many years in comparative comfort, but generally the case is very different, only a few years finishing its course in a downward direction; the average duration of life being about three years from the time it is first noticed.

"Our prognosis will depend upon the form of tumor; whether monocystic or polycystic, the monocystic being much the more favorable for treatment, and more likely to terminate in spontaneous recovery. Again, our prognosis will be influenced by the age of the patient; occurring in young persons it is more likely to advance rapidly than in old ones. It will advance less rapidly after menstruation ceases than before, and the earlier in menstrual life, the more rapidly will it advance."

Our author is a firm believer in the diagnostic importance of the granular cell. He says: "I have never found the ovarian cell described by Drysdale in any but ovarian fluid; nor have I

failed to find it in specimens that I knew to be from an ovarian tumor." But so many of the best gynæcologists doubt the accuracy of his conclusions, it is but fair to say that the question is far from being settled.

As to the treatment of these tumors he says: "It is not necessary to interfere, in any manner, with some cases of ovarian dropsy. Indeed, it is right to let all cases alone that do not impair the health or threaten the life of the patient. There are many cases which advance slowly, or remain stationary for a great many years, and prove but an inconvenience. We would not be justified in active interference in these cases; much less should we do anything directly for cases in which complications of a fatal character exist, e. g., phthisis or cancer, albuminuria, etc.

"When, however, the disease is making obvious progress, and particularly when the advance is sufficiently rapid to leave but little doubt of its proving fatal within the average time of their duration, we are bound to make every effort within our power to save, or prolong as much as possible, the life of our patient."

The treatment is described as palliative and curative.

The dangers of tapping are fully described, and the means of avoiding them plainly pointed out, "but the dangers and benefits of tapping cannot and ought not to be estimated by comparison with other operations. Each operation, of whatever kind, has its place, and is followed by its good or bad effects, for the reason, among others, that it is appropriate or inappropriate."

Our author believes, with almost all authorities, that the curative treatment of ovarian cystomata is practicable only by surgical means, and while many of the plans, by medical agents and otherwise, which have been recommended, are described, they are interesting simply as facts of history.

Several surgical procedures are described for curing the disease beside complete removal. One is pressure. "After tapping the cyst or cysts, apply firm and continued pressure, as much as the patient and the abdominal organs can bear, to excite a moderate degree of inflammation in the collapsed cyst, and in this way obliterate its cavity, a plan of treatment frequently successfully adopted by Baker Brown, of London. This plan, when carefully

managed and watched, is considered better than any other, except the complete extirpation of the ovary.

Another plan is to evacuate the sac and then inject some irritating substance, as iodine, into the nearly emptied cyst, to incite inflammation which shall obliterate the cavity.

The author suggests that alcohol, brandy, or some other local stimulant whose effect after absorption would be more transient as well as less powerful, would perhaps answer just as well as iodine.

The plan of making a fistulous opening, communicating with the peritoneal cavity, or the external surface directly, or indirectly through the vagina or rectum, is doubtless the most effectual plan for obliterating the sac, and, at the same time, the most dangerous, as a large number of cases result fatally—though numerous cases of cures by this method are reported.

Electrolysis, too, has its advocates, who report many cures and some deaths. But this method has not been sufficiently tried as yet, for one to judge of its results or determine the kind of cases most likely to be benefited by it.

The vaginal method of ovariotomy is described and recommended in suitable cases.

More than forty pages are devoted to the full description of abdominal ovariotomy, including the treatment of the pedicle, the ligature, drainage, the complication of pregnancy, the preparation of the patient for the operation, the steps in the operation, the accidents during the operation, and the after treatment, including the care of the patient, the wound and the complications, such as shock, hæmorrhage, peritonitis and septicæmia, closing with personal statistics. Dr. Byford uses the double-plated silver ligature, cutting it short and dropping the pedicle into the pelvis, and then carefully closing the abdominal wound.

Of the antiseptic treatment he says: "The value of this method, during the operation and after-treatment, is now so well established that I do not consider it necessary to do more than to express my concurrence in its use, and insist that no ovariotomy should be performed without it."

In the preparation of the patient all her functions are to be in the best possible condition, especially the skin, kidneys and

alimentary canal. "If the patient is greatly depressed by recent bereavement or other cause of intense grief, the indications should be very urgent to justify the immediate removal of the tumor."

If the patient menstruates, he would operate soon after the menstrual flow.

"The personal preparation of the surgeon, assistants and attendants should be carefully made. Perfect cleanliness in them is a matter of paramount importance; to this end, ablution of the hands and cleansing of the nails must be thorough immediately preceding the operation; and all articles used in the operation should be as clean as possible."

Ether is always used as the anæsthetic. "All the sponges used should be soft, free from sand and thoroughly carbolized. The carbolized water is from two to three per cent." It is interesting to note here in passing, that Mr. Keith, though reported to have abandoned the spray for fear of poisoning himself and his patients, has now returned to the weaker spray.

The full and accurate description of the steps of the operation cannot be epitomized, but must be studied in the work itself.

If adhesions are very numerous and firm, the method by enucleation, as taught by Prof. Miner, of Buffalo, is recommended.

After cleansing carefully and thoroughly the abdominal cavity, the carbolized spray is directed into the cavity, an assistant raising the lax abdominal walls, so as to perfectly carbolize every part of it.

"The incision is then closed by fine silk sutures and covered with patent lint, saturated with carbolized oil.

"The wound, thus covered, is further protected by cotton-batting five or six inches thick, which extends over the whole abdomen and down well upon the symphysis.

"The whole is secured by a flannel binder, from the pubes to the ensiform cartilage. The spray is continued until the oiled lint is placed over the wound."

In the after-treatment anodynes are recommended in such doses as are necessary to keep the patient free from pain, and

no more. And the temperature of the room, in cold weather, is not allowed to rise above 60° Fah.

But it is impossible to give an abstract of chapters like the "Accidents during the operation," and the "After-treatment of ovariotomy." They must be studied carefully by any one who would attempt the operation. Short chapters on the diseases of the fallopian tubes, coccygodynia or coccyalgia, and electririty, complete the volume.

The proof reading has evidently been hurried or careless. On page 33, Skene is spelled "Skein," and Reynolds "Renolds." Page 143, "Capelo" should read Tupelo; page 179, "perspirations" for perspiration; page 233, "boject" for object; page 242, "is avoided" for is to be avoided; page 277, "Spielberg" for "Spiegelberg; and the same page, "velous" for villous; page 357, "Goupel" for Goupil, and probably "Bennet" for Bernutz; page 353, "pelvic" tumors '*is*'" for "*are*"; page 397, "Gerring's" for Gehrung's; page 462, "Siemond's" for Simon's; page 458, "reply" for rely; page 559, "Weir" Mitchell for Wier Mitchell; page 533, "Chasignac" for Chossaignac; page 561, "even in the more puerpural co ıdition" for even more in the puerpural condition; page 597, and the corpuscles described by Drysdale for "and *none* of the corpuscles," etc.; page 609, "pubis" for pubes; and same page, "Dieulefois" for Dieulafoy; page 640, "grooved directory" for grooved director; and page 623, the sentence "and the patient escapes the annoyance and dangers which attend the great development that necessarily follows, especially when the operator is an experienced gynecological surgeon," is certainly ambiguous.

But a new edition must soon be demanded, and then we may expect these errors will be corrected.

The style is clear but concise, and always practical, and shows the author to be, as we all know, an experienced teacher.

The work as a whole is most valuable, both to the student and the practitioner, and probably better than any other single work upon gynecology—and there are now so many—represents American gynecological practice. D. T. N.

ARTICLE IX.—NITRO-GLYCERINE AS A REMEDY FOR ANGINA PECTORIS. By WILLIAM MURRELL, M.D., M.R.C.P., Senior Physician to the Royal Hospital for Diseases of the Chest, etc. Geo. S. Davis. Detroit. 1882.

After a short historical sketch of nitro-glycerine and the earlier experiments made in its internal administration by Mr. A. G. Field, of Boston, and Drs. Harley and Fuller, of London, whose statements quite conflicted with each other, the author gives his personal experience with the drug when taken by himself and administered to others in a state of perfect health.

These experiments, in the main, confirmed the observations of Mr. Field, and led the author to try the drug as a remedy for angina pectoris. He states that he has given it in several hundred cases, twelve of which are here placed on record.

Of these, four are classed as successful, and eight as unsuccessful, but in most of the latter the remedy seems to have given more or less relief for a time. In the four successful cases the remedy acted promptly, and gave very satisfactory results.

He usually began the treatment with a one per cent. solution of nitro-glycerine in alcohol, one minim of which was given three or four times a day in a tablespoonful of water. Unless the physiological effects, *i. e.*, headache, pulsations in the head, and drowsiness, were then marked, the dose was increased to two or four minims of the same solution every three or four hours, and an extra dose whenever an attack came on. The dose in most cases was subsequently rapidly increased to ten, fifteen, or twenty-five minims, and in a few cases to much more than this. It was found that sometimes the large dose produced less discomfort in the head than the smaller doses.

One minim of this solution, which is equivalent to gr. $\frac{1}{100}$ of nitro-glycerine, he considers a safe dose, and he thinks it always safe to rapidly increase the dose until its physiological effects are developed. Fifteen or twenty minims would usually be a poisonous dose, and in some cases, especially in women, he found it impossible to give more than half or even one-sixth of a minim of this one per cent. solution. Notwithstanding the very unpleasant results sometimes obtained from small doses, in one case he gave as much as one hundred and ten minims of this solution

eight times a day with beneficial results. The author prefers the solution to other preparations of the remedy, though he has also used it in pills and tablets, the latter of which he says "are not very nasty."

A sufficient number of cases have been here recorded to illustrate Dr. Murrell's method of giving the remedy, and the good and bad effects which sometimes follow; but we regret that out of "several hundred" cases he has only given us the results in twelve, and has left us to draw our own conclusions with regard to "several hundred" others. Of these twelve cases, only four were successful, and one of these the doctor never saw. Eight were only partially successful; some of these seem not to have had the affection at all, and one had taken the remedy entirely on his own responsibility, and had not been under the author's observation any of the time. What became of the several hundred others? Let us hope they were cured at once, so that they were not obliged to return for treatment. E. F. I.

ARTICLE X.—THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Vol. XXXII. 1881. 8vo. cloth. pp. 684. Philadelphia: printed for the Association, 1881.

The first part of these consists of reports, and the address of the late President, Dr. John T. Hodgen, which is a short and practical dissertation on surgery. In the Section on Practice of Medicine, Materia Medica, and Physiology, the usual amount of trash is fairly represented. Dr. W. C. Wile in his article on Blood-Letting in Pneumonia, fails to tell us which disease he refers to, the croupous or the catarrhal pneumonia. As his experience related only to the last few months, it could not be of much value, and as his thirteen cases may have included some cases of catarrhal pneumonia, it is hard telling how beneficial the blood-letting might have been, since quinine and morphine were also used together with it. The next paper is an ordinary note, of no intrinsic value. A paper of Dr. I. E. Atkinson, of Maryland, "May Iodide of Potassium excite Bright's Disease?" is a valuable one for reference.

The next paper in order, Soluble Compressed Pellets, is a

modest and disguised advertisement. Considering the commonplace of what precedes, it is refreshing that the next article be one on "The Materia Medica of the Future," by F. E. Stewart, Ph. G., of New York; unfortunately the realization of harmony between the patent medicine man and the ethical physician, must be a thing of the distant future indeed.

Is Croupous Pneumonia a Zymotic Disease? by Dr. D. W. Prentiss, of Washington, should be read by every old practitioner for his advantage. The section on Ophthalmology, etc., comes next.

The address on Obstetrics by Dr. Chadwick, of Massachusetts, has much statistical value, and contains a certain amount of information which must have cost its author a great deal of patient labor.

The next of the articles in that section are short, but valuable. The section on State Medicine is well filled; that on Diseases of Children opens with a paper of Dr. Jacobi on Contagious Diseases, which is of the greatest practical value, in regard to diseases of the adult as well. The section on Surgery is represented by many of the best surgeons in the country. The rest of the volume (464–684) includes Reports of Special Committees, Index to American Medical Necrology, By-Laws, The Code of Medical Ethics, a List of Permanent Members and the Index.

On the whole, these transactions have a good deal of intrinsic value, but if we desire the future *Journal* of the Association to prove a financial success, we will need to increase this intrinsic value ten fold in the near future. H. D. V.

ARTICLE XI.—A TEXT-BOOK OF HUMAN PHYSIOLOGY. By AUSTIN FLINT, JR., M. D. Illustrated by three lithographic plates, and 315 wood cuts. Third edition, revised and corrected. 8vo. cloth, pp. 978 $6.00. New York: D. Appleton & Co. 1881. Chicago: Jansen, McClurg & Co.

Few authors have given so much time to the study of physiology as Austin Flint, Jr., and his larger work on the Physiology of Man is cyclopædic in character, the one under consideration being more of a compendium, although so voluminous. This

book opens with a consideration of the blood, which represents the knowledge accumulated by many reliable observers, and that is a part of the value of the work, that every investigator receives credit for his discoveries. However, there is a deficiency in the discussion of the latest discoveries and views, regarding leucocytes, fibrin, red corpuscles, etc., and references are never made to the various works of the authors cited, and hardly any note is to be found at the bottom of pages as in Dalton or Foster.

Respiration is the next part considered, and satisfactorily. Then follow in order, Alimentation, Digestion, Absorption, Secretion, Excretion, Movements, Speech, Nervous System, Special Senses and Generation. This last is not treated of in as scientific a manner as the late discoveries demand; and we may add that although the work professes to give all valuable information on any subject it is not really progressive in character, and is not based as it should be on biology, but rather on long accumulated data.

As to the following mooted questions, the author teaches that we see objects inverted, that the blood is the cause of the contraction of the heart, that olfaction takes place from the contact of material emanations with the olfactory membranes, etc. As we might expect of so conservative a work, the various mental processes are not considered as physiological functions of the brain, though the subject is not entirely overlooked.

Before closing, we may state that while in many respects Flint's Text-Book is most complete, in many it is deficient, and in some rather antiquated; while the lack of proper references suggests that his larger work has the one just reviewed for an introduction.

Our intention would be misinterpreted if the preceding criticism deterred students from the use of the book, for it is certainly one of the best ever written in this country, and contains a great deal of valuable information. It is also printed and illustrated in very good style. H. D. V.

ARTICLE XII.—A TREATISE ON HUMAN PHYSIOLOGY. By JOHN C. DALTON, M. D. Seventh edition, with 252 Illustrations. 8vo. half Russia, pp. 722. $7.00. Philadelphia: H. C. Lea's Son & Co. 1881. Chicago: Jansen, McClurg & Co.

This is the "old reliable," the American student's friend. The amount of matter contained in Dalton's is not more than half that found in Flint's, but the original work done by the author, the selection of material, the rapid succession of new editions, and the progressive views assimilated have all contributed to the success of this treatise. Another peculiarity of the book is that instead of adding new discoveries to obsolete views, the author has at each edition, cut the latter while adding to the former, so that the science of physiology becomes very simple, and comprehensive at the same time. The first 130 pages are consecrated to Physiological Chemistry, which is a new science appropriately introdnced in this place, as it is not yet made a special department of Medicine. Section II comprises the Functions of Nutrition. Section III, the Nervous System, and Section IV, Reproduction. That is a clear division and grouping, of a nature to greatly facilitate the study of a subject rather intricate. Reproduction is treated of in a remarkably scientific and simple manner, though partaking of general animal and vegetable physiology. Digestion receives a most practical treatment, and the Physiology of the Mind is very suggestive of new discoveries. On the whole, this is an excellent manual, a little costly for the amount of matter it contains, yet having the advantage of a large type, and the greater advantage of being the production of a master. H. D. V.

ARTICLE XIII.—A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. By J. F. MEIGS, M. D., LL. D. Seventh Edition, revised and enlarged. 8vo. cloth, pp. 1055. $6.00. Philadelphia: P. Blakiston, Son & Co. 1882.

This is one of the most voluminous works on the subject, and also one of the oldest. This edition differs from the preceding in many particulars and probably make it such as to compete successfully with the many newer books now in the market. The

new article on food was greatly needed, and one would desire to have more of the medical rules under which children should be bred extensively described. The common diseases icterus, neonatorum and ordinary jaundice are not noticed, nor is epilepsy, nor headache. Diseases of the skin are treated of at some length, but eye and ear diseases are overlooked. As we should expect, the authors confound catarrhal fever, lung fever, and pneumonia, and call it a disease of the lungs, while most recent authors recognize a catarrhal pneumonia to be a lung disease; and a croupous pneumonia, an infectious disease. (See Ziemssen). This book is also liable to another criticism which applies equally well to other books whose first edition date of long ago, too large a part of the volume is taken to denounce old modes of treatment, by bleeding, tartar emetic, violent purgatives, etc., of which we had known nothing but for those useless discussions, which take the place of more valuable advice in the methodical treatment of disease. As to that matter of treatment we are rather surprised that the authors give so much prominence to opium in diarrhœas, and do not ever mention the valuable hydrarg. c. creta. But the treatment generally advocated through the book comprises the latest discoveries, and is fully up to the best works on therapeutics. Considering the amount of information contained, the book is rather cheap, and deserves a wide circulation. H. D. V.

ARTICLE XIV.—FROZEN SECTIONS OF A CHILD. By THOMAS DWIGHT, M. D. FIFTEEN DRAWINGS FROM NATURE, by H. P. QUINCY, M. D. Large 8vo. cloth, pp. 66.

These sections were made at Harvard, where the originals are preserved, hardened in alcohol. The author gives the following directions for making frozen sections: "First. be very sure that the body, or part to be frozen is in precisely the position you desire, and that there are no folds or indentations in the skin. I always use natural cold when possible. Weather much above zero (Fahrenheit) is unsatisfactory; but if the part is thoroughly chilled by several days exposure to a pretty low temperature, a night of 10° may possibly finish it. The body should be frozen like a rock—so much so that the operator cannot tell whether he is cutting bone or muscle. The sections should be made in a

cold room, with a very sharp saw that has been chilled. When a section is cut its surface is obscured by a thick half-frozen saw dust, which is doubly thick if the freezing is not quite sufficient. It is wisest if time allows, to remove this at once, which is done by pouring a little hot water over the section, and brushing or scraping it off rapidly and carefully. If it is to be kept (the specimen) it should be laid on a piece of glass or wood, and placed at once while still frozen, in cold alcohol."

This essay is a model in its line, and could hardly be surpassed in excellence, typographical as well as anatomical. We should recommend the process in comparative anatomy, which, of late, has received so much attention. The topography of internal organs could not be more forcibly impressed on the student than through such plates. One would naturally desire that the head had been represented in a few sections, and so the extremities.

H. D. V.

ARTICLE XV.—A RATIONAL MATERIALISTIC DEFINITION OF INSANITY AND IMBECILITY, WITH THE MEDICAL JURISPRUDENCE OF LEGAL CRIMINALITY, FOUNDED UPON PHYSIOLOGICAL, PSYCHOLOGICAL AND CLINICAL OBSERVATIONS. By HENRY HOWARD, M. R. C. S., Eng. 8vo, cloth, pp. 145. Montreal: Dawson Bros. 1882.

This work is really valuable, and will be welcomed in a time when the attention of every practitioner is turned toward insanity. It consists of a chapter, What is Insanity? one on the Medical Jurisprudence of Crime and Insanity, Criminal Responsibility, of a paper on the Brains of Criminals, by W. Osler, M. D., M. R. C. P., the Medico-Relations of Epilepsy, by James G. Kiernan, M. D., of Chicago; and "Some Experiences of a Barrister's Life," by Mr. Sergeant Ballentine; the whole hardly justifying the bombastic title, "The Philosophy of Insanity." This ought not to detract from a careful study of the book, however, as we are persuaded that much useful knowledge will be the result.

H. D. V.

ARTICLE XVI.—THE PRINCIPLES AND PRACTICE OF SURGERY. Being a Treatise on Surgical Diseases and Injuries. By D. HAYES AGNEW, M.D., LL.D. Profusely illustrated. Large 8vo., cloth, pp. 1066. Philadelphia: J. B. Lippincott & Co.

More than a notice of this 2d volume could hardly be expected. It is large and comprehensive, and suffices for all the ordinary purposes of surgeons. It will be, when completed, one of the largest works on surgery ever written by a single author, but will receive a serious competition from the cyclopœdias now being published on the same subject. We think we are justified in recommending smaller books to students, although valuable manuals are hardly to be found in the country. Agnew's Surgery will answer also as a reference book, and is quite an ornament on the shelf.

ARTICLE XVII.—A SYSTEM OF SURGERY, THEORETICAL AND PRACTICAL. In Treatises by Various Authors. Edited by T. Holmes, Surgeon. Edited in this Country by John H. Packard, A. M., M. D. Vol. III. 8vo. half Russia, pp. 1059. Philadelphia: H. C. LEA'S Son & Co. 1882.

This ends the series, and conforms in general with the two first volumes already received. It contains the diseases of the respiratory orgars; of the bones, joints and muscles; orthopœdic surgery; diseases and injuries to the nerves; gunshot wounds; operative and minor surgery; diseases of the skin, etc. Like the other volumes, this is well illustrated.

YELLOW FEVER.—Acting-Collector Goodrich telegraphed from Brownsville, Texas, as follows: The first case of yellow fever occurred in Matamoras a month ago (about July 12), introduced through Bagdad, Mexico, by railroad tramps from Tampico. Average daily deaths in Matamoras the past ten days, ten. The disease appeared in Brownsville two weeks ago. Total number of deaths, ten or twelve. August 12, 20 new cases of fever, and August 18, 32 new cases were reported. August 28, there were 46 new cases.

Editorial.

A "ROD" IN PICKLE FOR THE BACILLUS TUBERCULOSIS.

We propose to publish at no distant date a contribution to the literature of a subject which, though it concerns a very minute body, has been lately gaining in magnitude with every day. Those who read these pages need scarcely be told that, under the persuasive influence of various aniline stainings, bacteria are now daily projected into view in sections of tissues of the living body affected with a no small number of diseases. Koch's discovery of the bacillus of tuberculosis has in this way attracted an attention of the profession and the public which probably exceeds that directed to any similar subject during the past year.

Our readers will remember the position taken by Dr. H. D. Schmidt, of New Orleans, with reference to the bacillus lepræ, in his admirable paper upon that subject which lately appeared in this journal. They who were then arrested by the evident candor of the author, his unquestioned desire to arrive at nothing but exact truth, and his actual submission of the fruits of his labor to the critical examination of a special committee, will anticipate with no little pleasure the perusal of a paper upon an allied subject from the same master hand.

The essay to which we now refer, and which will embody the results of the late studies of the bacilli of tuberculosis conducted by Dr. Schmidt, is based upon observations begun by him during the fall and winter of 1881-1882. These extensive microscopical researches concerned originally the structure, evolution and involution of miliary tubercle. The announcement by Koch of his discovery of the bacillus of tubercle, was made during the progress of this investigation, and naturally served to stimulate Dr. Schmidt

to an extensive series of experiments in connection with this subject. He at once prepared a number of specimens of sputa and thin sections of tuberculous lung tissue, which were stained according to the directions of Koch, as originally given in the *Berliner Klinische Wochenschrift*. But though these staining fluids, methyl-violet and vesuvin, were prepared with the greatest precautions and in exact accordance with Koch's instructions, bacilli by their aid could not be detected. In some specimens of sputa, it is true, certain bodies became visible, having a faint bluish color, which were presented in the form, and of about the size, of small bacilli. Eventually the same phenomena were discovered in thin sections taken from other cases of the same disease. Failing thus to detect the bacillus in sections stained by Koch's own method, Dr. Schmidt had recourse to the old and well-tried bacteria detective, a solution of caustic potash in the strength of thirty per cent. By this method, the presence was established in tubercular tissue of minute rods, which in every respect corresponded to the description given of Koch's bacilli. The same results were obtained after the examination of a number of specimens of sputa. It was noticed, however, that in the examination of the first sections with caustic potash, these rods were almost always found in the company of a group of larger and smaller fat globules; and the idea was naturally suggested to the mind of the distinguished microscopist, that these rods, being very highly refractive, might represent minute crystals of fat. It will be remembered that he had observed groups of minute crystals of margaric acid in the degenerating fat cells seen in leprous tissue.

This idea grew to be more than a suspicion, in consequence of the fact that during the course of the last summer, he had made a large number of sections of the different organs involved in four fatal cases of yellow fever. Some of these, obtained from the liver, heart and kidney, were one day treated with the solution of caustic potash, with a view to determine the presence or absence of bacteria. In consequence of the fatty degeneration which the organs in these cases had undergone, the tissues under examination contained an unusual quantity of fat. When examined under the microscope, bacteria were not detected in any of

the slides, and the latter were thus laid aside upon the table for further examination. Upon the next day, Dr. Schmidt chanced to put one of these again under his objectives, when he discovered, to his astonishment, that it was covered with the most beautiful fat crystals. The same was true of the two other sections, but in all, the figures formed by the minute needles exhibited a difference, showing that the crystallization had taken place under the influence of the tissues themselves. Similar results were obtained by treating tubercular sputa with the potash solution.

We shall occupy no further space in giving details respecting the instructive and fertile theme which is thus suggested. In the paper which we shall publish at no distant date, they who are interested in this subject can follow with our author the line of observation which he has pursued in his remarkable experiments. Let it suffice to add here, that we can confidently assert that every form of Koch's bacillus of tubercle can be artificially produced in all its details by Dr. Schmidt, in every tissue that contains fat.

At a date subsequent to the publication of Koch's method of staining, that of Ehrlich, and also that of Gibbes, were placed before the public. Procuring the aniline oil and the chrysoidine from New York, Dr. Schmidt employed these also with the greatest precision and precautions, obtaining always the same results, that is, the discovery of the rods, but not in a stained condition. In tuberculous tissue, these rods are by no means found to correspond with each other in the matter of form and size. They are generally recognizable in those elements of the tubercular mass which have undergone fatty degeneration, but always in the company of fat globules, and frequently, also, of pigment granules. They are best recognized after treatment with the potash solution, because the latter renders clear the protoplasm of the cells, but eventually destroys it.

At this date Dr. Schmidt has made and examined, by various methods, hundreds of different sections, taken from more than a dozen different cases of phthisis, as also numerous specimens of sputa. The rods correspond in every particular with the descriptions given by Koch of his bacillus, though as yet they have not

been stained. They are highly refractive, and in both stained and unstained sections have a faint bluish color, which has led Schmidt to suspect that they have been supposed by other observers to have actually undergone staining when they had not. The "rods," or, as we shall hereafter call them, crystals, contained within the cells, have been generally found at the margin of the tubercle; very frequently, however, they have been recognized among groups of pigment granules; in some cases, even, large prismatic fatty crystals have been discovered, which, upon closer examination, proved to be composed of minute rods or needles. Sometimes the crystals occurred in the form of plates. All of these forms, however, observed in tuberculous tissue, have been artificially produced in sections which were non-tuberculous.

Let it be distinctly understood, that the position assumed by the distinguished pathologist of New Orleans is not as to the bacilli which Koch himself has seen, though we understand that some of Koch's own preparations are at this moment *en route* to Schmidt's laboratory, where they will be compared with those fat crystals, so-called bacilli, which our author has found to be so marvelously like the bacteria of German importation.

We do not say that the bacillus epidemic, if it may be so termed, will happily terminate in a fat globule and a rod-like crystal of margaric acid. *Parturiunt montes; nascitur ridiculus mus!* What we do say is, that such an issue, if it conclude the controversy, will be one for which we shall all be indebted to the patient, modest, and untiring devotion of the pathologist of the Charity Hospital in New Orleans. Whichever horn of the dilemma our readers may conclude to take, our part is done in giving them the assurance that there is a "rod" in pickle for the bacillus of tubercle, and that it is to be found not far from the delta of the Mississippi!

A VALUABLE sign of death is the lack of muscular contraction under an electric current, two or three hours after the heart has ceased to beat.

Original Translations.

A CASE OF MYELITIS, CONSEQUENT UPON MENINGITIS CEREBRO-SPINALIS, WITH DOUBLE SENSATION, AND ITS GRAPHICAL REPRESENTATION.

By OTTO SEIFFERT, M.D., First Medical Section of the Julius Hospital at Wurtzburg. Translated by EDMUND A. BOSS.

The symptoms of double sensation as a complication in tabes have been mentioned in the writings of E. Remak (previously by Leyden), and Naunyn. The latter described in an article a peculiar disturbance of sensation, which differed materially from the experience of Remak.

While in Remak's recorded case the patient, on having his foot sole pricked, first experienced any sensation three seconds after the act was completed, in that of Naunyn (which was probably tabes dorsalis) a like peculiarity occurred, followed in about two seconds by a repeated sensation of increased and abnormal intensity. Naunyn has likewise stated that this phenomenon was observed by him in three other cases. In two of these cases it probably occurred in conjunction with tabes dorsalis, and in the third with myelitis.

This phenomenon Naunyn observed especially in the feet; there was even once a second repetition of the original sensation; generally of two sensations the second was the more prolonged and painful; frequently, however, this order was reversed, the first being longer and more painful. As long as this double sensation continued distinct (*i. e.*, while the interval between the two could be appreciated), so long could the sensation be localized, and so long was the second referred to the same locality as the first. In all of Naunyn's cases, this power of repeating an original sensation lasted but a few days.

Naunyn, in describing these cases of double sensation, inclined toward the theory of Charcot, called Charcot's Dysæsthesia, *i. e.*, that the patient feels at the place of contact a sharp pricking, which, as it is transmitted inward, becomes more obtuse, and finally, at the terminus, is sharp again, as at the beginning of the sensation.

Fischer has also often observed this phenomenon of double sensation mentioned by Remak, and is convinced that it is not infrequent, but differs in his experience from the observation of Naunyn. In a later article Fischer records, among others, a case of double sensation, viz:

A patient thirty-eight years old, afflicted with tabes, came under my care. The second sensations were the reverse of those recorded by Remak, being less painful and shorter in duration, and moreover, the first sensation being experienced two and a half seconds after impregnation, followed by a short period of quiescence, which was in turn succeeded by a feeling ill-defined, as though the foot had simply been touched. Remarkable to say, the intervals between the two sensations decreased until not any interval was distinguishable according to the method employed by Fischer. Below I record a case that came under my notice, and which, according to the testimony of many, merits attention.

He was a man æt. twenty-three, who up to that time had always been in good health, and had lived in comfortable circumstances. Patient became unwell February 23, 1880, while serving then in the army. He returned on the aforesaid day from field manœuvres to the barracks with headache, especially severe in the region of the brow and anterior superior portion of the head; at the same time he complained of feeling very cold. During the night he had a severe attack of chills; headache increased; patient became dizzy; next day he became delirious, and remained in this state till the second week of his sickness. In the meantime his lower extremites began to contract, and patient was obliged to lie in bed with his knees drawn up, voluntary movements being impossible. At the same time his urine was retained, and catheterization became necessary. Three weeks later a serious catarrh of the bladder set in; this was treated with

injections of salicylic acid. From this time patient began to suffer from incontinence of urine.

After some time he became able to flex his knees, and in the middle of May patient first attempted to walk. His condition improved, and he was able, with the assistance of a nurse, to walk around a room.

In the middle of June patient had a relapse, and was again constantly in bed, and severe muscle cramps caused him great pain. At first only the muscles of the hips were affected in this way; patient felt as though the muscles of his hips were drawn together, his chest tightly laced, and as if his body were elevated, so that on moving he fell several times out of bed. These cramps lasted from a quarter to half an hour, and occurred several times a day. About the middle of August they decreased in virulence, and cramps of similar character occurred in his legs, chiefly in the night. His legs were drawn up toward his abdomen, and were only prevented from remaining in this position by the continued efforts of a nurse. On account of these cramps, the rest of the patient at night was much disturbed; they being separated by an interval of not more than half an hour.

From the middle of September these intervals became longer; first the cramps every hour, then only once a day, so that in a few months they returned only after a number of days; then they would be absent for a number of days again. During the day they would hardly be noticeable, and patient, if awake, could overcome them, and if they occurred at night, he would summon the nurse, who easily straightened his limbs.

Since the commencement of these cramps, indications of impending paralysis—difficulty in moving the upper and lower extremities, and inability to help himself—have become evident, so that patient is entirely unable to leave his bed.

Since December, 1880, constant constipation, which only powerful hydrastic cathartics could relieve; since that time patient has lost all desire to evacuate his bowels.

Since October, passage of calculi, varying in size, with urine; most of them the size of cherry-pits; two of them the size of a bean. In the months last past all these symptoms are constant;

evidence of paralysis in the extremities, bladder, rectum; and cramps in the legs nightly.

Patient was received at the Julius Hospital, November 6, 1881. Status: patient tall; appearance pale; anæmic; no change in the inter-thoracic organs; muscles of hands and forearms atrophied; grasp of the fingers synchronous, but that of the right side less firm than that of the left; strength in both hands very deficient. In the right elbow furrows that can be pretty well smoothed out, though patient complains on stretching out his arm of pain in the muscles of the arm. On bending arm, left side appears stronger; stretching of the arm impossible. Movements in the right shoulder-joint freer, those of the left indifferent. Reflex nervous action of the upper extremities considerably increased; left more than the right. External side of the right arm, on slight touching and slight pricking with needle, shows no sensation; the internal part shows normal feeling and sensation of pain. On the left arm there are no parts incapable of receiving and conducting impressions. The lower extremities are stiff and inflexible, and pressed against the side of the bed.

On the right side, only feeble action in hips and knee-joints; on the left increased activity of movement in the same.

Passive movements difficult, and muscular contractions can only be overcome with difficulty, and on using more force patient complains of severe pains in his legs.

Reflex nervous action of patella, tibialis anticus and tendo Achillis greatly increased, and increase is bilateral.

No abnormality of sensation discoverable in lower extremities. However, by testing in many places, we find the reflex action to be a little tardy.

The muscles about the hips have in part also lost their power of sensation, so that the patient can only sit up in bed with great difficulty; voluntary movements of the hips totally impossible.

Abdomen swollen, nowhere irritable. Pulse soft, frequent (120), regular. Urine constantly dripping, so that patient is obliged to constantly use a receiver. Urine cloudy, alkaline in reaction, and contains a small amount of albumen. Calculi, well rounded, and composed of ammonio-magnesia phosphate, are found in first part of the urine discharged, and are about

pin's head in size. The urinary sediment contained an exceedingly large number of crystals of ammonio-magnesia phosphate.

November 8. Evacuation of fæces difficult. Urine large in amount, 2000-2200 c.c., and of continued alkaline reaction. During the first few days, a large quantity of calculi, some as large as a bean; most of them the size of a pin's head or a split pea, were discharged with the urine.

November 17. Urine for the last few days free from calculi. Incontinence and alkaline reaction continued. Quantity large, 2400-2700 c.c. Faradaic stimulation of the muscles of the upper extremities produces little contraction, and galvanic excitation shows likewise greatly decreased action of the muscles. Galvanic stimulation of the lower extremities demonstrates similarly their diminished power of contraction, and with an intermittent Faradaic current, only feeble, long-continued twitchings were obtained.

November 18. Patient was brought into clinic to-day. In addition to what has already been found on examination before, there are several atrophied spots on his hands; strongly marked furrows on his palms and near the origin of the nails. To-day, for the first time, a singular and remarkable phenomenon was observed in the lower extremities. On pricking the soles and external borders of his feet to ascertain his power of sensation, it was discovered that a single impregnation produced two reflex twitchings and two sensations of pain. The reflex action and the perception of the sensation occurred together. Upon pricking, there was produced a reflex action, and synchronously with it an exclamation of pain; after a short pause, a second reflex action, with a second exclamation of pain. On minutely interrogating the patient, it was ascertained that between the two reflex actions, with their attending outcries, there was no continuing pain.

The treatment up to this time consisted in galvanization of the spinal region, use of Wildunger water, good diet and warm baths. Another symptom is to be mentioned, namely, that cramps in his legs often recurred during the night. Patient used to wake up from a sound sleep in deep pain, which disappeared on changing the painfully cramped position of his legs. The nurses were obliged to stretch his limbs with considerable force in order to

afford the patient relief. The following prescription was used for these cramps:

℞. Calc. brom.....8.0.
Calc. iod.....2.0.
Aqua distil.....150.0.
Syr. Spl.....20.
D. S. 3 tablespoonfuls daily.

November 30. Urine steadily of alkaline reaction, little albuminous; quantity of urine per diem varies from 26-3400 c.c. On account of constipation, cathartics requisite from time to time. Double sensation can still be obtained on the foot sole. When two impregnations with a needle are made rapidly in succession, three sensations of pain are experienced by the patient. If a short time elapse between the two impregnations, he experiences four sensations of pain. The cramps in his legs still continue.

December 15. Patient subjectively little improved. Paralysis of the bladder and sphincter unchanged. No calculi have been lately passed. The warm baths are well borne by the patient, and seem to greatly benefit him. In place of the prescription above mentioned, patient receives every evening a large dose of potass. bromide. Double sensation on foot sole still continues.

December 25. Double sensation still present. The cramps in the lower extremities occur more rarely, and are less painful in character. Patient is made daily to sit in a chair, and to perform simple gymnastic exercises.

January 2. Double sensation unchanged. First attempt was made to day to illustrate graphically this phenomenon; concerning its success and termination see below.

February 1. During the past month bladder and rectal complications show an apparent improvement. Urine continues alkaline, but contains only a small amount of sediment, of pus and ammonio-magnesia phosphate. Calculi are no longer discharged. Power of movement in the hands and fingers much improved; cramps in lower extremities continue; double sensation likewise continues.

February 6. Within the last few days patient had an attack of renal colic; high fever, pain in the region of the left kidney, which terminated after a discharge of urinary calculi. Patient will be taken away to-day by his relatives.—From the *Weiner Medizinsche Wochenschrift*. No. 26, 1882.

ON RESECTION OF THE STOMACH.

When Péan published first his observations on resection of the pylorus, four years ago, he was accused of making vivisections on the human person. But shortly afterward Billroth, at Vienna, studied with his pupils the conditions and means of excuting this operation. After so many ovariotomies, laparotomies, gastrotomies and resections of the intestines had been successfully performed, it was but a question of time to perform the resection of the pylorus. Merrem, in the year 1810, originated the idea of performing extirpation of the pylorus; Guenther practiced it on three dogs. Gussenbauer and Winiwarter demonstrated afterward the possibility of gastrotomy on dogs. Kayser and Wehr repeated the experiments, and studied the resection of the stomach. We will give the experiences of those operators in the following lines: "The conclusions arrived at are as follows: 1. It is absolutely necessary to multiply the sutures in order to prevent the escape of fluids into the peritoneal cavity. To reunite an intestine which has a diameter of two centimeters on the cut surface, from 24 to 30 sutures must be applied. 2. The hæmorrhages are mostly due to the omentum. The dissection ought to be made very slowly, and in short strokes, taking care to secure the divided parts in two ligatures. 3. The unsuccessful cases are due to imperfections in the operation. The peritoneum should not be the cause of death. It is necessary to examine the patient under anæsthesia before the operation, to ascertain the extent of the tumor, its configuration and its adhesions. Billroth has demonstrated that it is not advisable to operate when the neoplasm adheres to the pancreas, to the descendant portion of the duodenum and to the anterior abdominal glands. It is necessary to wait in case the patient be jaundiced. Great dilatation of

the stomach will indicate a fatal result. The patient must become accustomed to the stomach pump. The stomach must be emptied before the operation with the stomach pump, and antiseptic surgery should be applied. The incision is made in the linea alba above the tumor (Billroth), and it should be from eight to twelve centimeters long. Hemostasis should be complete before the peritoneum is opened. To explore the stomach is usually difficult, but it presents itself in the aperture in cases of great dilatation, and then it is drawn forward. Some surgeons propose to reunite the opened stomach with provisional sutures, in order to make the operation extra-peritoneal. If there should be too many or too intimate adhesions, it is better to close the wound without any further interference. To isolate the tumor from the great and small omentum, it is necessary to make a number of double ligatures, dividing between the ligatures every time. The resection of the tumor should thus be without any loss of blood, and warm towels should cover all the neighboring parts. After having isolated all parts which have to be elevated, a sponge is laid under these parts, to absorb all the fluids. To prevent this escape of fluids some operators have compressed with hard rubber pincettes; others apply ligatures. Rydygier uses elastic compressors, which he places one centim. above the tumor. These compressors consist of two pieces of iron thirteen to fifteen centim. long, and three-fourths centim. thick, and they are covered with rubber. One is placed on the anterior part of the stomach, and the other on the posterior part. They are fastened by pieces of rubber. The incision is made slowly, with scissors, into the stomachal wall, an assistant ligaturing the bleeding vessels and sponging the parts with phenic or carbolic acid. It is very difficult to obtain two apertures which will fit exactly. Rydygier makes an oblique excision on the duodenum, and he secures thus two surfaces of equal extent. Billroth unites a part of the stomachal orifice with sutures until the other part corresponds with that of the duodenum. The margins of the duodenum are united to those of the stomach in the following manner: The sutures are introduced into the mucous membrane of the stomach; they penetrate the muscular wall and make their exit through the serous membrane one centim. from the surface of the incision;

they then enter the serosa of the duodenum, and pass through the muscularis and mucosa of the same organ. A double line of sutures is made by most operators, in the space of two to three millims. from each other, to prevent the escape of fluid into the peritoneal cavity, and some sutures are introduced on the posterior aspect to adapt the mucous membrane. Catgut and carbolized silk have both been applied with success, but silk is preferable. The reunion of the abdominal walls is made as in ovariotomy. In the first days after, the patient is nourished by the rectum. Twenty-seven resections of the pylorus have been performed, with six recoveries. Shock and prolapsus are the most prominent causes of death. The prolonged application of chloroform causes a weakness of the heart, with following death. When there are adhesions to the pancreas, Billroth closes the wound without extirpating the pylorus. Among 903 cancers of the stomach, 542 were limited to the pylorus. At all events, the extirpation of the pylorus will always be a difficult and dangerous operation. —*Archives Générales de Médecine.*

AMAUROSIS CHINICA.

Three cases of amaurosis by the use of strong doses of quinine are reported. The first, a lady thirty-five years of age, suffered from acute endometritis, and took 80 grains of quinine in three hours. Convulsions set in, hearing disappeared entirely, and the vision was destroyed for five days. The pupils were dilated. Color blindness persisted for nearly one month. The second case was a strong man of thirty-eight years, suffering from pneumonia; he took fifteen grains of quinine in five hours. There was total blindness for three days, and vision was limited for nearly one year. The third case was similar to the second; perception of color appeared much later than that of light. Kirchner has made investigations in animals on this subject, and he found that quinine, as well as pure salicylic acid, causes congestion in the cavity of the tympanum and in the labyrinth, which is frequently followed by hæmorrhage.—*Lo Sperimentale.*

THE editor of the French medical journal "*Le Progrès Médical*" publishes a series of lectures, physiological investigations,

etc., which promise to be highly interesting. The first series begins with five lectures of the celebrated physiologist, F. M. Charcot. These lectures are truly scientific, without a particle of those mysterious sentences to be found in former lectures of Charcot. It seems that the French medical schools are reforming at the present time, and that they again aspire to the high position among medical schools which they occupied half a century ago. Prof. Charcot is doubtless on the path of true scientific research, as these lectures on the pathogenic conditions of albuminaria satisfactorily prove, and the editor of this series, Dr. Bourneville, who is also an earnest and active worker, is to be congratulated on these well selected publications. In our next number we will give some extracts from these lectures.

PYOMETRA CAUSED BY AN ADENOMA OCCLUDING THE CERVIX UTERI.

The patient, sixty-seven years of age, menstruated the last time fifteen years ago. For the last two years a bloody discharge has taken place from the vagina. The patient became reduced in strength. The uterus was movable, but the index finger could pass easily into the os externum. There was a fluctuating tumor, a part of which was extirpated instantly. The microscopical examination showed glandular elements, and proved the growth to be an adenoma of the mucous membrane of the cervix uteri. The patient not agreeing to a total extirpation, suffered for the next three months from severe pains in the suprapubic and right iliac regions, and the discharge had a fetid smell. A severe cough harrassed the patient continually. She at length resolved to undergo the operation. The body of the uterus was now much enlarged and somewhat elastic. The cervix was divided with scissors on both sides, the growth laid bare, and removed by scraping with the curette. When the upper part of the growth was removed, there was suddenly an escape of pus and blood to the amount of 100 ccm. The cavity was then scraped out, and a five per cent. carbolic solution injected. The walls contracted easily, and the woman was dismissed as cured after two weeks. The cough never reappeared from the day of the operation.—*Corresp. Blatt f. Schweizer Ærzte.*

DOUBLE PERIPLEURITIS WITH SUPPURATIVE MEDIASTINITIS.

Peripleuritis is not described exactly in handbooks of pathology. It is an inflammation of the tissue which connects the pleura costalis with the ribs. It can be of a traumatic character, or it may have its origin in the pleura, or an alteration of the bone-substance of the ribs, and it may terminate in abscess. In all the published cases, as that of Dr. Muratti, the cause of the disease is similar to that of empyema. But there are two differential points in these two diseases. In empyema, the ribs and the intercostal spaces are uniformly extended in a large extent of space, while in peripleuritis but one or two intercostal spaces are enlarged. In empyema there is a purulent infiltration between all the pleural laminæ, while in peripleuritis there is but a localized cavity filled with pus. Percussion will show this exactly. The following case gives a true picture of the disease. The patient, thirty-six years of age, complained in the month of December, 1878, of a gnawing feeling and pain in the right side of the thorax, and on pressure of the postero-inferior part of this region the pain increased. Movement of the body did not hurt. In March, 1879, he noticed, beside the pain, a small blister with altered skin around it, which broke open and discharged some pus. Granulations sprang up, but the flow of pus continued. After a while the patient began to expectorate a sweet liquid, similar to that of the abscess. The fistulous opening was enlarged with the knife, and it healed quickly, but the pain reappeared. The patient entered the hospital in December, 1880. The thorax was cylindrical, with lateral deviations from the vertebral column; respiration bronchial. Under the seventh rib of the right side, four cm. from the vertebral column, there was a fistulous opening, the region around it being œdematous, and one point on the rib itself very painful. On the paravertebral region, in correspondence with the fistulous area, there was a very painful place. The vesicular murmur on the right side was very indistinct. The expectorated masses had a similar appearance and taste to that of the fistulous opening. There was further a sucking noise in the fistulous opening in expiration. The diagnosis was fistula of the bronchi caused by double peripleuritis and mediastinitis. An

excision of the rib was made, but the patient died after a short time. The autopsy proved the correctness of the diagnosis.—*Gazetta Medica Italiana.*

SYPHILIS OF THE BRAIN.

The knowledge of syphilis of the nerves and brain has been but lately developed. Virchow speaks first about caseous infiltration of the brain caused by syphilis. Hoyak describes a thrombosis of the arter. fossæ Sylvii with softening of the brain. Esmarch observed cases of mental derangement originating from syphilis. Weber and Wagner showed the presence of nodular growths (syphilomata) on the large vessels of the brain. Heubner's great work on diseased blood-vessels of the brain throws a full light on these pathological phenomena. Prof. Neumann, at Vienna, says that syphilitic degeneration of the central nervous system is discovered by several symptoms. There is intense headache, caused by affection of the dura mater, while dizziness and decrease in the mental functions are effected by impediments in the circulation, *i. e.*, by the diseased vessels which supply the exterior membranes of the brain (Rindenbezirke). The symptoms of a brain affected with syphilis begin suddenly with fainting spells and convulsions, with partial paresis. They do not continue very long, and there are no true paralytic affections; but sometimes there is paresis of the eye or face. From the cerebral symptoms alone it is difficult to make a diagnosis, but there are often affections of the skin, the mucous membranes or the bones. Prof. Neumann had several cases of this kind. The first case was a woman thirty-two years of age, who was delivered of a still-born child two years before, the father of this child being syphilitic. There was a slight erosion on the under lip of the patient, and she had suffered during the past year from epileptic attacks. These attacks had occurred very seldom at first, but afterward they appeared six times in one night. She had made several attempts to escape through the windows. After the use of about 100 grammes of iodide of potassium, all the symptoms disappeared. The second case, a woman twenty-six years of age, had ulcerations on the lower extremities during the last six years. The soles of the feet showed deep scars as a result of psoriasis

syphilitica. On the right tibia there were exostoses. There were first fainting spells, with spasms of the muscles of the face; then epileptic attacks, strabismus convergens, and tonic spasms in the lower and upper extremities, with dilated pupils. At the end of four months, the girl was dismissed as cured. The third case showed in the post-mortem examination a softening of the ganglia, caused by obliteration of both exterior fossæ Sylvii. The fourth case, a man thirty-four years of age, had syphilitic ulcerations on the palate, symptoms of ataxy, disturbances of coördination in the right limb, and paræsthesia in the right hypochondrium. He was entirely cured by the use of iodide of potassium. — *Wiener Med. Wochensehr.*

A CERTAIN FORM OF MUSCULAR ATROPHY PECULIAR TO THE LOWER EXTREMITIES.

The large class of amyotrophies from medullar origin consists of two distinct groups: the deuteropathic and the protopathic atrophies. Progressive muscular atrophy, with all its variations, forms one group of this class; it is also called the Aran-Duchesne type. The irregular march of this disease, its affecting the upper part of the body, and especially the arms and hands, distinguish this class. But there is a muscular atrophy, made known by Dr. Friedreich, which is characterized by its etiology and course of symptoms. This atrophy is a hereditary disease, and it attacks only the lower extremities and hips. It is the same disease known among English physicians as the Weatherbee ail, four generations of the Weatherbee family having been afflicted with the disease. Eulenburg reports a case of three sisters, who were taken sick when eight years of age, and who suffered from deformities of the severest character, caused by this atrophy. Bernhard has seen five brothers suffering from this disease. Naunyn reports cases of a family where the disease has been hereditary for six generations. In the hospital Hotel-Dieu, at Paris, there is at the present time a patient showing the symptoms of the disease in a most peculiar form. He is twenty-six years of age; a hackman; the muscles of the upper part of the body strongly developed. When eighteen years of age, he felt a weakness in the region of the kidneys, and he could but with difficulty climb upon the seat

of his back. The course of the disease has been very slow, and in the last three months the weakness in the limbs has increased to a considerable degree. The muscles in the upper part of the body are very vigorous, and in contrast with that, the muscles on the lower extremities have partially or entirely disappeared. The mass of sacro-lumbar muscles, the extensors and adductors of the upper part of the limb, have atrophied to such a degree that the humerus can be felt as only covered by the skin. The biceps, semi-tendinous and semi-membranous, are regular. The triceps femoralis contracts with good effect. The appearance is that of pseudo-hypertrophic paralysis, and the gait of the patient is the same as in those affected with this disease. The patient walks, balancing laterally, the body resting on one or the other side. By the preservation of the triceps femoralis and the atrophy of the extensors, the patient walks on the anterior part of his feet, there being veritable equinism. The patient can walk with a cane, but he is tired in a very short time. The difficulty in sacending steps is extreme, and he does it mostly by going on hands and feet. There is no trouble from any of the sphincter muscles, as in other ataxic diseases. The atrophied muscles do not act when electricity is applied.—*France Médicale.*

RUPTURE OF AN UMBILICAL HERNIA, WITH PROLAPSUS OF INTESTINES.

A farmer's wife, fifty years of age, has had for the last ten years an umbilical hernia which was as large as two fists. She wore a truss, but this consisted, when seen at the accident, of a hard flat pad, without any leather covering, and attached by a common spring. After she had applied the truss she slipped and fell to the ground, with the abdomen forward, and in this accident the walls of the abdomen ruptured, and the intestines prolapsed in large masses. It was three hours after the accident before the first physician arrived. The umbilical region was covered with intestines, which were of a rosy color and but slightly inflated, the omentum not presenting. The wound was about twelve cm. long; it was serrated and did not bleed. The walls of the ruptured abdomen were hardly two to three mm. thick, without any lamellæ distinguishable. The patient did not com-

plain of any pain, and was entirely conscious. Pulse and respiration were normal; no vomiting. The attempted reposition was not successful at first. There was no incarceration, and three fingers could enter into the peritoneal cavity, but reposition was only effected after several incisions had been made into the umbilicus. The wound was closed by silk sutures, and a flannel bandage tightly fixed around the abdomen. The woman died after twenty-four hours. The immediate cause of death was the reduced temperature of the intestines, which had been laid bare for more than three hours.—*Medic. Chirurg. Centralblatt.*

OFFICIAL LETTER OF THE FRENCH AMBASSADOR AT BERLIN TO THE SECRETARY OF PUBLIC INSTRUCTION AT PARIS.

To the President of the Council:—By a letter dated September 27, 1880, the ambassador had sent a series of documents to the department regarding vaccination in Germany. As a supplement to those communications, I think the following statements will give complete information. The German press has discussed for some time the discoveries of two German physicians, Pissin and Reisner, in regard to proceedings which allow the animal virus (cow-pox) to be kept a certain length of time without losing its efficiency. According to the statement of the journals, the health office of the German Empire has approved the efficiency of these methods, and the possibility of substituting a similar improvement on human virus as is done already in Hesse. The human virus prepared after this method is tenable, easy to preserve and transportable, and it has been introduced into general practice, notwithstanding the serious inconveniences which result from transmission of contagious diseases. Till now, the attention has been directed only to syphilis, but the discoveries of a German savant, Dr. Koch, have greatly enlarged the field of observations. Dr. Koch has scientifically proved the identity of origin of scrofula and tuberculosis. He has found in the human blood a microscopic germ susceptible of dimorphism. This germ is able to produce either of these diseases, according to its development. The dangers having been revealed by Dr. Koch, the methods of Pissin and Reissner have called further attention to this point in Germany, where vaccination is obligatory. According to a law of

April 4, 1874, every child has to be vaccinated before the age of two years, and revaccinated before it is twelve years of age. In cases of unsuccessful vaccination the operation is repeated the next year. The law makes all persons responsible, and fixes certain penalties for remonstrances against it. The statistical tables prove the efficacy and the good results of this law. Germany has been free from epidemics of variola, which gathers so many victims in the large cities of the neighboring states, as St. Petersburg, Warsaw, Vienna and Prague. The immunity stated in the principal German cities, as Berlin, Munich, Hamburg, Breslau, extends also to the ports, as Bremen, Altona, Stettin, Danzig, which latter are in regular contact with the infected countries. It is further observed that variola ceases entirely to make its appearance, and there are but isolated cases in Prussia, Silesia and Posen, which are bordering the Russian provinces, where variola is always epidemic. There is formed, thanks to obligatory vaccination, a veritable healthy frontier.

(Signed) DE COURCEL.

—*Bulletin de l' Académie de Médecine.*

ANÆSTHESIA OF PLANTS.

Claude Bernard has stated that a condition essential to general anæsthesia is the intimate mixture of the blood with the anæsthetic agent. A similar condition is necessary in plants; the anæsthetic agent must be mixed with the nutritive liquid. Paul Bert places a plant under a glass bell filled with anæsthetic vapors; after a few minutes the plant is no longer excitable. There are two periods of intoxication in plants as well as in man; the first is that of excitement, and in the second the excitability disappears entirely; the leaves settle down and the blossoms close. Partial anæsthesia can be obtained in plants by exposing a part of the plant to the anæsthetic. To obtain a complete general anæsthesia of the plant, it is necessary to introduce the anæsthetic into the root and bring it into general contact with the nutritive liquid. One part of chloroform is mixed with three parts of water, and brought into a vase, the plant with the root being placed into it. The top is covered with a dense cloth. Then the leaves of the lower part will first settle down, and the

blossoms of this part will close; afterward the anæsthetic effect will be observed on the middle part of the plant, until at last the whole plant is anæsthetized.—*Lyon Médicale.*

INTERSTITIAL CHRONIC HEPATITIS.

The results of careful investigations which Dr. Maffuci made on this disease are as follows: 1. Atrophic hepatic cirrhosis is always caused by periphlebitis of the vena porta. 2. This periphlebitis is reproduced either by chemical agents, or by septic matter circulating in the blood of the vein, or by mechanical irritants which operate on the tunica adventitia. 3. The inflammatory process is similar to that in other organs; it is characterized by hyperæmia with migration of leucocytes, and by formation of exsudates, in clinical as well as in experimental observations. 4. The periphlebitis is entirely different from the interstitial inflammations of the liver provoked on the biliary ducts. 5. The profound troubles of nutrition of the hepatic arteries cause necrobiosis of the liver. 6. The slighter nutritive alterations of these vessels can effect only an active hyperæmia. 7. The interstitial alterations of the liver provoked by arterial lesions are very different from those produced by periphlebitis. 8. These alterations must be taken into consideration in most observations.—*H. Movimento and Lyon Médicale.*

CONTRACTION OF THE ORIFICE OF THE PULMONARY ARTERY WITHOUT TUBERCULOSIS.

The patient, twenty-one years of age, had been treated for varicocele, and he had been minutely examined on account of certain curious phenomena. The testicles, rather distinctly palpable, were enveloped in a soft mass, formed by the venous plexus of the spermatic cord, which had enlarged to a considerable size. The dilatation extended also to the veins of the scrotal integument. The face of the patient was cyanotic; on the abdomen and the lower extremities there were strongly developed venous irradiations, forming on certain parts veritable bluish sacs. All these phenomena had progressively developed, the patient noticing them first five or six years ago. There was no rheumatism, but the patient had sometimes violent palpitation of the heart. Four days

before his death he acquired an angina by taking cold, and erysipelas, probably of herpetic character, set in. He died suddenly, without any other symptoms. The autopsy showed the right ventricle of the heart dilated; the orifice of the pulmonary artery very much contracted. There was no endocarditis, but the liver was affected with hypertrophic cirrhosis.—*Progrès Médical.*

THE BACILLI OF TUBERCLE.—For the demonstration of tubercle bacilli in the sputum of phthisical patients, Baumgarten recommends the following method as more convenient than those of Koch and Ehrlich. A little of the sputum is dried on the cover-glass, as recommended by the latter, and then treated with potash—one or two drops of a thirty-three per cent. solution of caustic potash added to a watch-glass of distilled water. The tubercle bacilli can then be readily seen with a magnifying power of four hundred or five hundred diameters, and a little pressure renders them still more distinct from the inclosing detritus of tissue. In order to preclude the possibility of confounding the bacilli of tubercle with those of other species, the cover-glass may be raised and placed aside until the layer of fluid on its under surface is dry, and then passed two or three times through a gas-flame, and then on it may be placed a drop of an ordinary watery solution of aniline violet, or any other nucleus-tinting preparation of aniline. All the putrefaction bacteria then appear under the microscope as an intense blue or brown (according to the testing agent and its strength), while the tubercle bacilli remain absolutely colorless, and can be seen with the same distinctness as in the ordinary potash preparation. The whole process does not occupy more than ten minutes.—*The Lancet.*

NITROUS OXIDE.—That this is the safest of all anæsthetics has been established beyond a question. In one institution where such administration is subject of record, this gas has been given over 100,000 times, and not only without a death, but without causing in a single instance symptoms sufficiently serious to necessitate transporting the patient home in a carriage.

Selections.

SOME FALLACIES OF THE BIOPLASSON THEORY. A REPLY TO DR. HEITZMANN. By LESTER CURTIS, M. D., Chicago.

In the June number of the *Dental Cosmos* is an article written by Dr. C. Heitzmann, of New York, on "The Minute Anatomy of the Teeth in the Light of the Bioplasson Theory." It is chiefly an explanation of his peculiar views of cell-structure. The views may be summarized as follows: Every living organism contains in its interior "a delicate reticulum pervading the whole mass." This reticulum has no break anywhere, but is continuous throughout the whole body. It is the machine for the production of all motions, and is the only living part of the organism. There are no such things as cells. The appearances which have been called cells are only condensations of the net-work.

In the course of his article Dr. Heitzmann refers to a recent paper of mine. This paper was a review of his theory so far as relates to the red and white blood-corpuscles and the pus-corpuscle. I will recapitulate some of the chief points of the paper, in order that those who have not read it may the better appreciate Dr. Heitzmann's criticisms.

About three years ago, before I began to study the net-work, I wrote to Dr. Heitzmann and asked him the best method of seeing the structure and the kind and quality of glass necessary to show it. His recommendations were as follows:

"Take a drop of pus, fresh, without adding anything, and you will see the wonderful structure in each pus-corpuscle with great ease.

"Prick your skin on the palmar surface of your thumb, transport the drop on a slide, and cover right away with a thin covering-glasss, the edges of which have been oiled, so as to prevent evaporation of the fluid. In the perfectly fresh blood you will see the structure in each colorless corpuscle.

"Add to a drop of fresh blood a small drop of a forty per cent. solution of bichromate of potash. This will within one hour extract the hemoglobin, and you must succeed in seeing the reticular structure in each red blood-corpuscle."

The glasses recommended for showing this structure with such ease were "a first-class $\frac{1}{10}$ immersion—such as I use—of Vèrick's, Hartnack's, Grunow's, and Tolles's manufacture." The list of names, though containing good ones, is slightly miscellaneous, and nothing is said about the need of anything more than ordinary water immersion-glasses. Indeed, some of these makers had not then, and have not yet, so far as I know, made any of the most modern homogeneous immersion objectives. Nothing is said about the need of any special appliances for illumination. It is probable, therefore, that my microscope, with a Powell & Leland dry condenser, and especially my Powell & Lealand water immersion $\frac{1}{16}$, is fully equal to the task of seeing the structure. With these appliances I have done the most of my work on this subject, though I have also used some of the very finest homogeneous glasses, including Zeis's, Tolles's, Powell & Lealand's new formula $\frac{1}{8}$, and others.

Proceeding according to his directions, I added a forty per cent. solution of bichromate of potash to a drop of blood, and studied the red corpuscles. Many of them lost their color, in-indeed; but with this loss of color they underwent some other remarkable changes. They became reduced in diameter from one-third to one-half, and their surfaces presented so many wrinkles and distortions that they were almost unrecognizable as blood-corpuscles. I saw no net-work in them, but even if I had seen something that looked like a net-work, I should have placed little reliance upon it as an indication of actual structure, when seen among so many unnatural appearances. I therefore turned from the red to the white corpuscles, following in my study the directions laid down by Dr. Heitzmann.

It so happened that when I began to study the white corpuscle I had been using the objective, with which I wished to study the corpuscle, in the examination of an object protected by a very thick cover. In preparing the specimen of blood I used for a cover a film of mica. The cover-adjustment had been left as it was arranged for this thick cover, and was, of course, wrong for the mica. When I had found a white corpuscle with a lower power, I put on the high power and brought the corpuscle into view. I could not refrain from an exclamation of surprise. There stood the net-work before me as plain as could be, and for an instant I thought that Dr. Heitzmann was right; but the body was blurred at the edges, and the red corpuscles in the field had a fuzzy indistinct outline. It then occurred to me that I had not arranged the cover-adjustment. I began to turn the adjustment; as I turned, the field of view became clearer, but the net-work grew fainter. Finally, when the field came out bright and clear, and the outlines of the red corpuscles were well defined and sharp the net-work was gone. In place of it the corpuscle was covered with little rounded eminences, varying in size and in distance from one another.

These eminences were always seen when the cover-adjustment was right. I had in my possession for some time a very fine homogeneous immersion $\frac{1}{8}$ made by Gundlach. This glass had no cover-adjustment; it always showed the eminences, and never the net-work. The eminences appear to be minute granules, of which the corpuscle is composed. They are seen with great distinctness in the large granular white corpuscles that are so abundant in anæmic persons. Women after prolonged lactation are excellent subjects in which to study them. In some of these cases the nodules are so distinct as to strikingly remind one of the zooglœa masses of bacteria spores that one may see at any time in urine beginning to decompose. In some cases the granules are scarcely less distinct than in the zooglæa mass. I have often seen the vacuoles, which so frequently form in the corpuscles, come so near the edge as to leave only one row of granules between the vacuoles and the edge of the corpuscle. Sometimes this thin rim breaks and leaves the granules projecting in a point. I have even seen some of the granules become detached and float away

from the corpuscle. In some instances the granules leave the body in great numbers, and a shadowy, ghost-like structure remains, with here and there a granule sticking to it.

By keeping the slide with the blood upon it for ten or twelve hours, taking care that the edge of the cover is well oiled, the corpuscles change in appearance. The granules may then be seen to have a swarming motion, resembling that of a collection of bees.

Pus corpuscles resemble the white blood-corpuscles very closely. The corpuscles from an ordinary abscess resemble the white blood-corpuscle that has been kept for some hours. In pus-corpuscles the swarming motion of the granules is often very distinct. I have watched one particular granule in one of these bodies, and seen it move more than half way across the corpuscle before escaping from view. Occasionally I have seen pus-corpuscles in part of which the swarming motion could be seen, while it was absent in the other portions.

These granules within the corpuscles are of a size large enough to be easily measured under a power of from twelve to fifteen hundred diameters. They are also of an appreciable height, as can be seen under a sufficiently high power by gently changing the focus with the fine adjustment, and also by changing the direction of the illuminating-pencil, as can readily be done with the achromatic condenser.

My paper was illustrated with drawings. Part of these were made by myself from nature; the others were careful copies of drawings illustrating net-work made by Dr. Heitzmann or his friends.

All my own drawings were compared with the objects themselves by persons familiar with microscopic observation and were pronounced reasonably good likenesses. Drawings like these were sent to Dr. Heitzmann for his opinion. He criticised them in a letter to me in the following words: "You draw everything in and out of focus." Who will dare determine in every case just what is in focus and what is out of focus, and then venture to decide what to leave out of the drawing and what to put in? If Dr. Heitzmann's words mean anything at all, they mean,

"You should draw not what you really see, but what you think you ought to see."

I hope he is better able to reconcile this method with old-fashioned-honesty than I am. I insist that the only proper and honest way to draw is to draw everything exactly as you see it, without any change at all, and that is what I have tried to do in my figures.

The first of the illustrations of the net-work was made by Dr. Klein of London. It is commended in Dr. Heitzmann's article, and was referred to by him in a letter to me in the following words: "He draws the net-work *even nicer than it really appears.*" This disposes of the drawing as a representation of what was actually seen, and shows that it was constructed on Dr. Heitzmann's plan. The other drawings were made by Dr. Heitzmann himself.

My paper also contained arguments the bearing of which Dr. Heitzmann's imperfect knowledge of English may have prevented his perceiving. He, however, should know the details of a controversy upon the interpretation of the appearances seen upon some delicate silicious shells, which are used as tests for the microscope. One of these, called *pleurosigma angulatum*, was formerly described and figured as being covered with a honey-comb of cup-shaped figures, whose sides, united to each other, formed ribs, which ran across the surface of the shell. This was explained as a beautiful plan of nature to economize material and combine strength with lightness. But after a while glasses were improved, and the accuracy of this description was doubted. Then it was proved that, instead of being covered with ridges, the shell was really composed of little beads joined together so as to form a plate. The beads result from the peculiar manner in which silex is deposited from certain solutions; similar beads can be formed artificially. The hexagons, then, were the imperfectly-seen interspaces between the beads.

It is now a recognized fact that a series of circles placed close together will give rise to an optical illusion, and produce the appearance of hexagons bounded by straight lines. If these circles are of equal size and at uniform distances the hexagons will be regular, but if they are of irregular size and at unequal dis

tances, the hexagons will be more or less distorted. We can, of course, distinguish the true shape of the figures if they are large enough and are placed in a good light near the eye; then they will appear distinct and perfectly round. But if they are removed to a little distance, especially if the light is dim, the illusion is so complete as to be almost irresistible, even when we know the shape of the figures. Any one may try this experiment for himself by drawing a series of circles and filling in the outlines with black.

The similarity of these hexagons to Dr. Heitzmann's figures is very striking. It would be of interest to know his explanation of the resemblance.

Most of us who have tried to push microscopic investigation are painfully aware that there is a limit of visibility beyond which we cannot go. The most difficult natural object which is used as a test of the quality of the microscope is another silicious shell called *amphipleura pellucida*. This shell is marked with lines $\frac{1}{90000}$ of an inch apart. When it was shown that these lines had wavy edges, which gave them an appearance somewhat like that of a rope, one of the most difficult of feats was thought to have been accomplished. From this appearance and the analogy of other similar structures it was inferred that the lines were rows of beads. Beads, then, $\frac{1}{90000}$ of an inch in diameter, are almost beyond the border of microscopic visibility, and are only to be seen with the very best of modern homogeneous immersion glasses, used with other modern accessories. But very few have been able to see them, even with these appliances.

Now, to return to Dr. Heitzmann's drawings. They represent the net-work at rest, actively dilated, and actively contracted In the one representing the corpuscle at rest the meshes of the net-work inclose spaces which average rather more than half an inch across. The white corpuscle in Dr. Klein's drawing is magnified not far from two thousand diameters. The meshes in Dr. Heitzmann's drawings are not less than five or ten times as large as in Dr. Klein's. If we may judge from these facts, then, Dr. Heitzmann's figures represent objects magnified *ten or twenty thousand diameters!* Let us look at these figures a little.

The nodal points at the intersection of the lines are largest in

the drawing which represents the net-work as contracted. In this drawing the nodes are about one-fourth of an inch across. If we suppose the figure to be magnified twenty thousand diameters, the real size of the bodies would be $\frac{1}{80000}$ of an inch. But, not to press matters, say it is magnified only ten thousand diameters. This would give the bodies a size of $\frac{1}{40000}$ of an inch. Such a body might be seen without excessive difficulty with a good high-power glass. There are, however, some other difficulties that we may consider.

An ordinary white blood-corpuscle rarely, if ever, exceeds $\frac{1}{2500}$ of an inch in diameter. If these figures represent portions of such a corpuscle, then twenty of the nodules placed in a row would entend across the corpuscle, not counting the interspaces. But the interspaces, even in this figure, are about as large as the nodes. Turning to Dr. Klein's drawing, we see that between twenty and thirty nodes are found in the diameter of the body. Twenty nodes of $\frac{1}{40000}$ of an inch and twenty interspaces of the same size would be somewhat crowded in a space of $\frac{1}{2000}$ of an inch.

In the drawing showing the net-work in a relaxed condition, the nodal points are only one-sixteenth of an inch across. Here we are in a much better condition as regards room, but there arises another serious difficulty. If we still suppose that our corpuscle is magnified only ten thousand times, we shall have a $\frac{1}{160000}$ of an inch across, about one and three-fourth times smaller than those beads of *amphipleura pellucida*, which are so small as never to have been clearly seen.

Again, the widest of the lines which connect these nodes are less than the thirty-second of an inch across, and the narrowest much less than this. Does he really expect us to believe that he, or any one else, can see lines less than $\frac{1}{320000}$ of an inch across, and lines, too, exceedingly pale, and buried in a mass of tissue like them in color and appearance?

I might continue this subject further, and call attention to some investigations of Professor Abbe, of Jena, on the ultimate visibility of objects, which would afford food for reflection in this connection; but I will leave the point.

Such are some of my observations and reflections on this subject. While engaged in the study I have communicated, personally or by letter, with a large number of microscopists, several of whom have earned more than a national reputation. Some were kind enough to go over the ground together with me and by themselves. Every one of them, without exception, who did so agrees with me. Some have expressed themselves quite strongly on the point, and I have never succeeded in finding an experienced microscopist who believes the theory.

My paper was read at the last meeting of the American Society of Microscopists. There were present a number of life-long microscopists, some of them men of eminence. The paper was received by them with marked favor, and without one dissenting voice, so far as I know.

In spite of this support which the subject has received, the following is all that Dr. Heitzmann has to say about it:

"Lately Dr. Lester Curtis published an article on this subject, and stated that he could not see the reticulum. This is a very modest way to announce that one cannot see what another can. If a person publicly confesses that he cannot play on the piano a master piece of Liszt's, we are willing to believe it; but does it follow that others cannot play the piece either? What is gained by such a confession? Dr. Curtis gives illustrations of what Elsberg and I have said and seen, and of what he could *not* see. I mention this because you are all prepared to understand that delicate observations of this nature are not easily made by every one. A great many look into the microscope, but very few can *see*. If one of you who had never played the violin were handed a good violin and told to play a tune, he would say, 'I can't.' Let him practice for a few years, and learn to play a tune. It is very much the same with the microscope. If you look in for but a short time, you cannot see. It required more than fifteen years' application to enable me to see what can readily be seen, and if a tyro comes and declares that he cannot see, I do not think that such assertions should be taken as proofs against facts corroborated by others."

I submit to the judgment of all fair-minded readers whether such a rejoinder is in any sense an answer to my arguments.

And I insist that until they are answered I have sufficient ground for holding that this net-work is merely the misinterpreted interspace between the granules, and that it is one more example of the many optical illusions which, from before Ehrenberg's day up to the present time, have so often led astray even good observers.

The plate herewith accompanied the paper referred to in the text.

Figs. 1 to 5 were drawn by myself.

EXPLANATION OF THE PLATE.

Fig. 1. An ordinary white blood-corpuscle with one red corpuscle.

Fig. 2. An ordinary white blood-corpuscle from another person, and two red corpuscles lying one over the other.

Fig. 3. Granular white corpuscle from Mr. Griscom; granules beginning to leave the body.

Figs. 4 and 5. Granular corpuscles from Mr. Griscom, discharging their granules.

Fig. 6. A white blood-corpuscle, referred to by Dr. Heitzmann; from Klein's "Atlas of Histology."

Figs. 7, 8 and 9. Representation of the net-work from "The Structure and other Characteristics of Colored Blood-Corpuscles," by Louis Elsberg, page 46; referred to by Dr. Heitzmann. Fig. 7 represents the net-work at rest; Fig. 8, in extreme contraction; Fig. 9, in extreme extension.

ON THE TREATMENT OF DORSO-LUMBAR ABSCESS BY MEANS OF A FREE INCISION AND SUBSEQUENT CARBOLIZED INJECTIONS.

By NORMAN H. CHAPMAN, M. D. M. S., late of the Philadelphia Orthopœdic Hospital and Infirmary for Nervous Diseases, and the Pennsylvania Hospital, etc.

On February 7th, 1882, Mark C., æt. 55 years, married, a painter, whose weight when taken sick was 208 lbs., came under my observation with the following history:

Twelve weeks ago was taken sick after an exposure to cold and damp, with a chill, fever of low type, pain in right side and general malaise confining him to bed. The aid of several local physicians was from time to time summoned, with the result of giving slight temporary relief, but the progress of the case was invariably downward, never gaining at any time sufficient strength to

leave the bed. His true condition was never taken cognizance of or at all events was never made known to him, nor was anything radical ever suggested for his relief.

Upon examining the case I found a large strumous or cold abscess occupying the dorso-lumbar region upon the right side, which upon being carefully mapped out gave evidence of containing somewhat more than a pint of fluid. The man's general condition from long confinement in bed, and from the constant drain of the formation of pus, was very poor. He had lost over one hundred pounds in weight, and was indeed in almost the last stage of exhaustion from inanition, and the drain of suppuration. He was exceedingly feeble, very restless, delirious at times, and unable to obtain sleep without a heavy opiate. Hectic fever with afternoon exacerbations and evening declines had set in, the variations in temperature ranging from 2° to 3.5° F. The countenance when not flushed with hectic fever was pale and sallow, and the facial expression was that of a great anxiety. The patient did not suggest much pain, and there were none of the evidences of acute inflammation about the tumor, but his generally enfeebled condition was so extreme that I could not consider it safe to subject him to the necessary shock of an operation.

In the treatment of this case I therefore at first instituted a process of over-feeding, and of mild stimulation, by giving the stomach all it could very well handle of such simple and easily digested articles of diet as milk, milk punch, animal broths, gruels, oysters and the like, together with Wyeth's preparations of beef, wine and cinchona. As this systematic over-feeding, a veritable process of stuffing, was kept up from day to day with such slight variations as were most pleasing to the palate, a gradual improvement in the man's general condition was noticed. At the expiration of ten days the hectic fever had abated, he was no longer delirious, did not require opiates and wore a more cheerful expression of countenance.

In consequence of the improvement in the man's general condition I now considered it safe to operate, and was preparing to do so when word came that as the result of an accident which occurred while the patient was sleeping, the abscess ruptured. The

family being much alarmed hastily bound up the parts with compress and bandage so that at the time probably not much more than one-third the contents of the cavity escaped. Upon removing the cloth some five or six hours after the rupture took place, I enlarged the opening by incision to about three-quarters of an inch, in order to give free vent to the fluid, and at this time took from the cavity upwards of fourteen ounces of thick scrofulous pus before it was completely emptied of its contents. When the cyst was well emptied an ordinary eyed probe could be entered into the cavity its entire length in almost any direction, and swept about from side to side, with perfect freedom.

At the first dressing of the abscess it was well distended and thoroughly washed out by syringe, with a one-twentieth aqueous solution of carbolic acid. And in order to protect the parts against the farther ingress of air as much as possible, the opening was carefully covered with the carbolic oil (1 part of carbolic acid to 15 of olive oil) and lint dressing. Over this a pad of oakum was placed, and a large compress so adjusted to the parts as to produce considerable pressure upon the walls of the collapsed abscess, the whole being held in place by a roller. Each day this method of treatment was continued, being careful each time the dressings were changed and the cavity syringed out, that the wound or opening was constantly enveloped in a strong vapor of carbolic acid.

For forty-eight hours after the first dressing the secretion of pus was very rapid, from three to four ounces somewhat decomposed, being removed at each daily dressing. After this time the discharges assumed a more healthy character, and the quantity grew rapidly less. The manner of syringing out and dressing the parts, already mentioned, was practiced every day until the latter part of February, when about two-thirds of the cavity was found to be obliterated. From this time on the carbolic injections were repeated with less frequency, *i. e.* at intervals of two or three days, as the character of the discharge would seem to indicate, and upon several occasions the carbolized solutions used were as strong as one to eight.

Under this treatment the size of the abscess continued steadily to diminish, the man's general health and appearance to improve,

and on March 14th, he got up, and four days later his weight with overcoat was 108 pounds. Upon March 20th, the cavity was almost entirely obliterated, the probe only entering to a depth of about three-quartes of an inch. At this time the man's general condition was so much improved that he resumed work. In the course of the fortnight following, and under the stimulation of lunar caustic, the remainder of the cavity healed from the bottom by granulation and recovery was then complete.

I also desire to mention that this patient had years before been the subject of primary syphilis, and that during his recent illness there were evident some of the tertiary manifestations of the disease, but he was not, however, placed upon specific constitutional treatment until he was up and about. He was then given liberally of mercury and the iodides.

May 15th. At this date, two months after the patient first got up, he is in excellent health, is rapidly gaining in strength, and in flesh; weight now 168 pounds, and it is constantly increasing. The patient thinks that in a few months more he will entirely regain his old weight and vigor. As to the condition of the side there are no physical evidences whatever of returning suppurative trouble.

Remarks.—In the treatment of this case it was my intention to free the abscess from pus at the earliest possible moment, not by means of the valvular incision of Abernethy, or aspiration, but by a free incision under the carbolic acid spray, after the manner of Lister, and subsequently to follow up the treatment systematically distending and washing out the cavity with moderately strong carbolized solutions. Moreover, the man's general health when I first saw him was in such a precarious condition that any such decided interference with the parts involved must needs prove fatal. I therefore felt called upon to employ every means at my command to support and build up the general health, carefully husbanding every gain which the patient made, and meanwhile, to wait patiently in anticipation of the time when the powers of the patient should be deemed sufficient to enable him to bear up under the necessary shock of an operation. When I had considered this time at hand, however, spontaneous evacu-

ation intervened, rendering an operation unnecessary, and fortunately the accompanying shock very light.

There is a point here in reference to the entrance of air into a pus cavity which should not be overlooked. It is one of the first principles of Lister's treatment as applied to the management of chronic abscess "that during the whole treatment the opening into the abscess shall never for a single second, be exposed to air unmixed with a strong vapor of some volatile antiseptic."* In this case, however, atmospheric air unimpregnated with any antiseptic both came in contact with the opening, and entered the cavity of the abscess, without materially interfering with the subsequent efficiency of the carbolized drainage. The cavity of a scrofulous or cold abscess is lined with a more or less well developed pyogenic membrane, and if after its evacuation it be well distended with a moderately strong carbolized solution, whether air may have entered or not, the character of the lining membrane is changed by the cauterent effect of the acid, and the destruction of atmospheric impurities secured. I do not mean to imply that atmospheric air may freely whistle in and out of the cavity of a cold abscess without doing injury, for such would be the merest absurdity, but the fact which I wish to insist upon is that should air chance to gain access to such a cavity, by accident or otherwise, the occurrence is not an event which need be the cause of undue alarm, because its injurious effects may be at once counteracted by distending the cyst with a moderately strong antiseptic solution. The solution used should be strong enough to change the nature of the lining membrane of the cavity, and to impregnate all of its discharges. Besides this the cyst should be regularly washed out with the carbolized solutions at such intervals as will prevent the discharges from decomposing, and every attention paid to the external dressings of the part.

I have employed aspiration in cases similar to the one related above, but the operation has invariably required to be several times repeated, and the results have never been altogether satisfactory. The line of treatment which would appear to be the most promising of a good result in the management of a cold abscess, and particularly in such as are located in the dorso-lumbar

*Erichsen's Science and Art of Surgery, new edition, vol. i., p. 137.

region, as I have in a measure illustrated by the history of Mark C's case, is that by a free incision into the most dependent portion of the sac under the vapor of a strong antiseptic; and afterwards by the forcible distention of the suppurating cavity with an antiseptic solution—preferably carbolic acid.

By this mode of procedure is gained a complete evacuation of the cavity, permanent relief of tension, free drainage and no decomposition of discharges. Resolution will in this way be secured, not by the uncertain absorption of pus as after aspiration, nor by granulation, but by contraction of the cavity, together with the approximation and agglutination of its walls.—*Vaugin's Diamond, Kansas City, Mo.*

THE NEW MEDICAL AND DENTAL DIRECTORY for Chicago and the suburbs, which has been gotten up by Mr. C. A. Kendrick, now of this city but formerly of Cincinnati, is completed, and was issued during this month (September). Besides the names, addresses and telephone facilities of the physicians and dentists, there is a very valuable list of professional nurses, whose names have been furnished Mr. Kendrick by leading physicians of the city. The chart also contains a list of the medical publications, medical and dental societies, surgical and dental depots, veterinary surgeons (graduates) and a full list of the medical institutes of the city, such as colleges, dispensaries, hospitals, infirmaries, etc.

Mr. Kendrick's address is No. 70 Monroe street, care of Dr. E. C. Dudley.

The cost to each subscriber is $1.50, including a chart, and some six hundred names have already been enrolled. The design of the publisher, it may be added, is to place copies of the chart in every drug store and medical institution of the city, and the principal hotels.

Items.

CERTIFICATES of Practice, entitling the holders to practice medicine and surgery or midwifery in Illinois, have been issued to the following named practitioners by the State Board of Health:

E. L. M. Bristol, M.D., Chicago, Ill.; diploma of Jefferson Medical College, Philadelphia, Pa.

Albert Beasley, M.D., Grand Tower, Ill.; diploma of Missouri Medical College, St. Louis, Mo.

Julius H. Dietrick, M.D., Chicago; diploma of Swiss Medical Council, Zurich, Switzerland.

Albert B. DeLiplay, M.D., Chicago; diploma of Medical Department, University of Michigan, Ann Arbor, Mich.

Wm. A. Johnston, M.D., Peoria; diploma of Medical Department University of Pennsylvania, Philadelphia, Pa.

Charles H. McGorray, M.D., Chicago; diploma of Medical Department University of Michigan, Ann Arbor, Mich.

A. J. McIntyre, M.D., Thompsonville, Ill.; diploma of Medical Department University of Michigan, Ann Arbor, Mich.

Patrick McCambridge, M.D., Springfield; diploma of Missouri Medical College, St. Louis, Mo.

J. M. Patton, M.D., Oak Park, Ill.; diploma of Medical Department University of the City of New York.

Isaac N. Ruddell, M.D., Charleston, Ill.; diploma of Medical Department University of Louisville, Ky.

Thomas C. Rivers, M.D., Chicago; diploma of Medical Department University of Louisiana, New Orleans, La.

Ernst P. Raab, M.D., Highland, Ill; diploma of Medical Department University of Pennsylvania, Philadelphia, Pa.

M. M. Robinson, M.D., Enfield, Ill.; diploma of Kentucky School of Medicine, Louisville, Ky.

M. F. Spaulding, M.D., Kimmswick, Mo.; diploma of St. Louis Medical College, St. Louis, Mo.

Carl F. Sandberg, M.D., Chicago; diploma of Christiana University, Norway.

Dr. H. Saguin, Amboy, Ill.; certificate of twenty-four years' practice.

Dr. John A. Simmerman, Lane, Ill.; certificate of twenty-seven years' practice.

Edward K. Tyler, M.D., Illinois City, Ill.; diploma of the Medical Department, Iowa State University.

Frank A. Wyanet, M.D., Pullman, Ill.; diploma of the Medical Department University of Michigan, Ann Arbor, Mich.

David A. White, M.D., Oak Grove, Ill.; diploma of the Ohio Medical College, Cincinnati, O.

Charles F. White, M.D., Wayne City, Ill.; diploma of the Missouri Medical College, St. Louis, Mo.

Minnie E. Buchner, midwife, Chicago, Ill.; certificate of the Missouri School of Midwifery.

Elizabeth Brumer, midwife, Piopolis, Ill.; sixteen years' practice.

Elizabeth Koester, midwife, Plum Hill, Ill.; sixteen years' practice.

Johanna Mueller, midwife, Chicago; certificate of examination.

Karoline Novetney, midwife, Chicago; certificate of the University of Prague.

Elizabeth Richardson, midwife, Bluff City, Ill.; sixteen years' practice.

STATISTICS OF INSANITY IN THE UNITED STATES.—Dr. C. L. Dana gives (*Journal of Nervous and Mental Disease*, April, 1882) the following statistics regarding the insane in this country: We had in 1880, in round numbers, 89,000 to 96,000 insane, which gives a ratio of 1-570 (1-520) of the population. The census ratio in 1860 was 1-1,310; in 1870, 1-1,100; in 1875, 1-953. Our population increased in the decade 1870 to 1880 about 26 per cent., while our insane population has apparently increased over 100 per cent. As regards the distribution

of insanity and of its increase, the proportion of insane is greatest in New England, where the ratio is one to 357. Here, however, the rate of increase is becoming slower. In proportionate number of insane, after the New England and Pacific States, come the Middle States (1 to 446); then the Western (1 to 520), and then the Southern (1 to 780). As regards asylum accommodations, in 1881 we had 74 State and 14 large private asylums, with a capacity, approximately, for 31,900, but holding 39,145. At a very low estimate, therefore, our asylums are overcrowded to the extent of 10,000 patients, while there are about 50,000 who are not in any asylum at all. Regarding the cost of asylums, we have about $40,000,000 invested in these institutions, at an average cost of over half a million apiece. It takes about $3,000,000 a year to run them, or $82,000 for each institution, not including interest. If we should add interest, the total annual expenditure for the care of the insane amounts to $12,000,000. The annual cost for each patient has been variously estimated at from $166 to $316.

THE MANAGEABLE ZONE OF ANÆSTHETICS.—Paul Bert has announced some discoveries of great value respecting the mode of action of mixtures of anæsthetic vapors and atmospheric air upon the animal organism. He applies the term manageable zone to the different degrees of admixture, rising from the proportion of anæsthetic which is insufficient to put to sleep, to the proportion which will cause immediate death. In the case of chloroform and ether, the mortal dose appears to be exactly double the minimum anæsthetic dose. Anæsthesia takes place in the middle of the manageable zone very rapidly, and without danger, so that the animal may be left for two hours in the anæsthetic atmosphere without any one being concerned about him. The manageable zone of ether is a little more than three times as wide as that of chloroform, while that of the protoxide of nitrogen is considerably wider that of ether. Here we see why ether is less, and the protoxide of iron still less, dangerous than chloroform.

DR. BLISS has appealed directly to the board of audit to be allowed $25,000 for his services as Mr. Garfield's physician. He

claims his practice was worth $1,500 a month, and this was lost by reason of his attentions to the President. If he was not more successful with his other patients than he was with the President, those who recovered because he had to leave them might feel like "chipping in" to help the government get rid of him.—*Daily News.*

EPIDEMIC CHOLERA.—300 deaths from cholera occurred in one day at Manila, Phillipine Islands, lately. 294 of the victims were natives. A cable dispatch from Japan, August 29, stated that out of 755 cases of cholera within twenty days at Yokohama, 572 cases proved fatal. At Tokio about 80 cases and 50 deaths have occurred daily.

PROF. J. ADAMS ALLEN, President of Rush Medical College, has returned much improved in health from his prolonged tour through Europe, and has taken his residence at the Woodruff House.

Prof. Allen has removed his office to 125 State St.

ELECTRICITY is becoming a frequent cause of death. Two men, while attempting to climb the railing of the Tuileries gardens at Paris, during a display of fire-works, August 8, caught hold of the electric wires used in illuminating the grounds, and both were struck dead instantly.

AT a meeting of the Philadelphia Academy of Natural Sciences, February 7, Dr. Leidy exhibited specimens of worms from the black bass. They were bright red, three to six inches long, and lived coiled up in the stomach and other tissues of the fish.

OPIUM DENS.—August 24, a raid was made by the Chicago police on six opium dens. Nine whites and six Chinamen were arrested. No females were found, and the white men were of a very ordinary class.

THE Siberian plague is appearing in the most widely separated quarters of European Russia. An epidemic of measles spread in Iceland in August.

CLINICS.

MONDAY.

Eye and Ear Infirmary—2.15 p. m., Ophthalmological, by Prof. Hotz.
Mercy Hospital—2 p. m., Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical by Prof. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes: 3 to 4 p. m., Diseases of the Chest, by Prof. Ross.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m., Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m., Diseases of Children, by Prof. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.
College of Physicians and Surgeons—2 p. m., Medical, by Prof. S. A. McWilliams; 3 p. m., Surgical, by Prof. R. L. Rea.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Chicago Medical College—3 p. m., Neurological, Prof. Jewell.
Woman's Medical College—2 p. m., Gynæcological, by Prof. Stevenson.
College of Physicians and Surgeons—2 p. m., Diseases of the Chest, by Prof. S. A. McWilliams; 3 p. m., Gynæcological, by Prof. A. Reeves Jackson.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, at the South Side Dispensary and at the West Side Dispensary.